

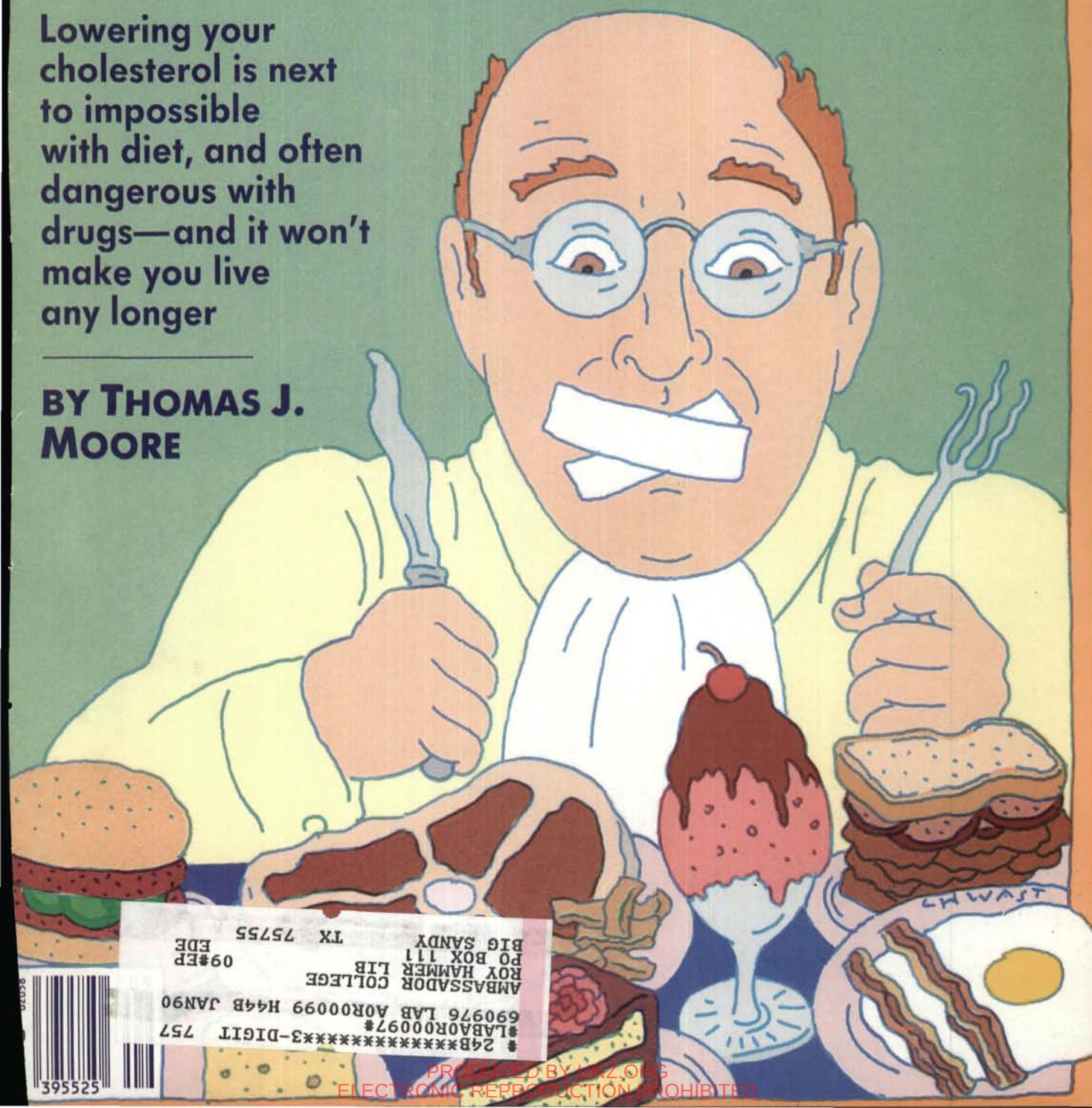
The Atlantic

A VERMONT WEEKEND / NEW YORK'S SCARY "GOOD" PUBLIC HOUSING

THE CHOLESTEROL MYTH

Lowering your cholesterol is next to impossible with diet, and often dangerous with drugs—and it won't make you live any longer

BY THOMAS J. MOORE



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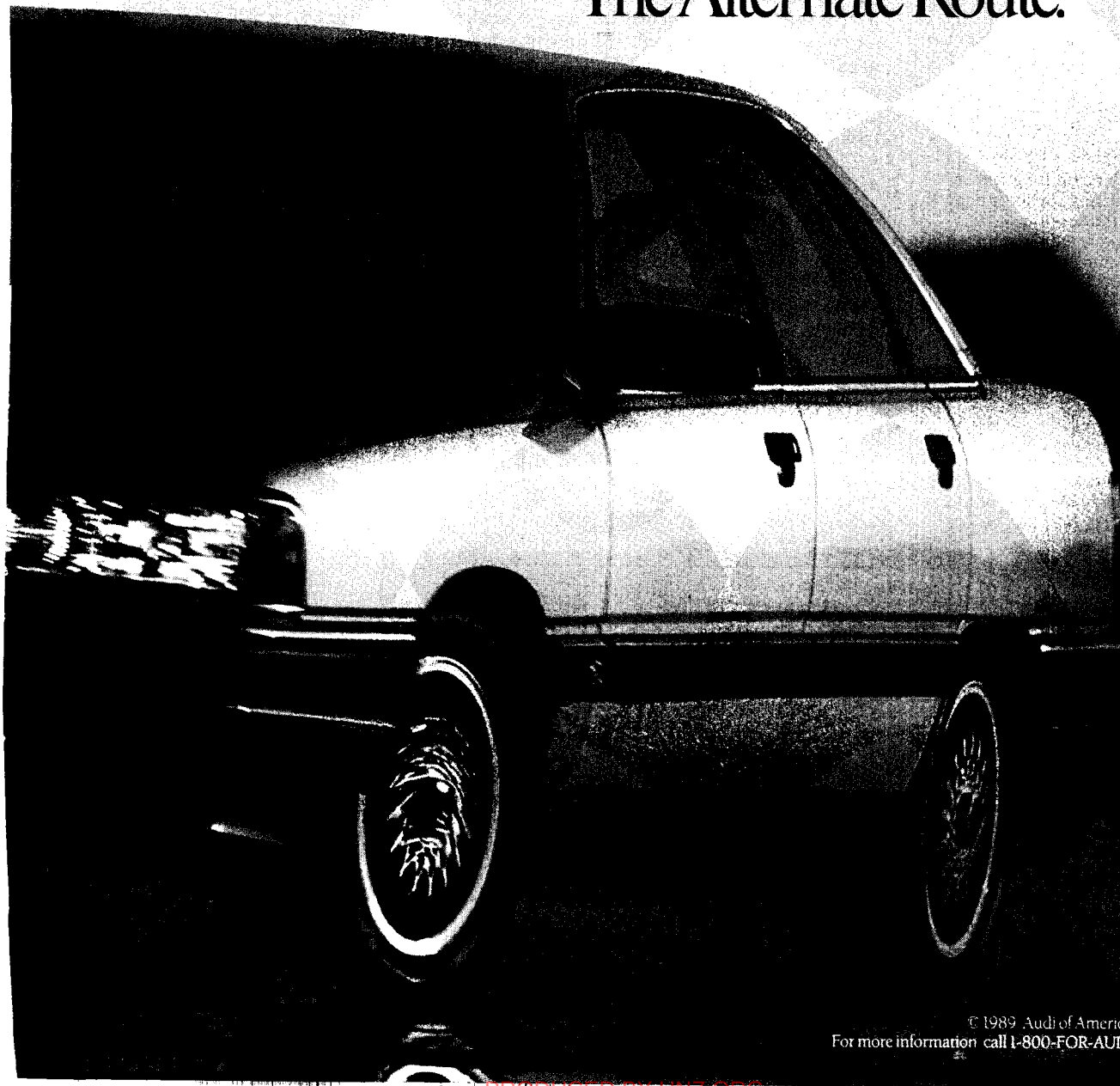
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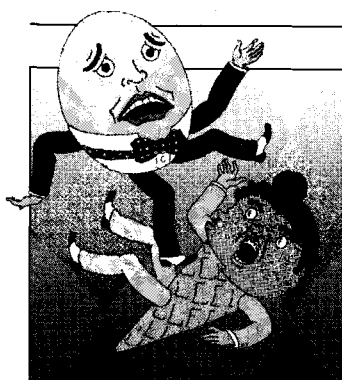
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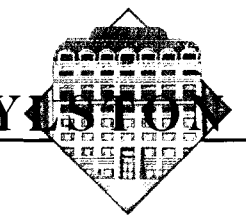
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745 BOYD STREET



IN MAY OF last year we published a cover story, by Orville Schell, on the Chinese astrophysicist Fang Lizhi, calling him China's Andrei Sakharov. The article described Fang's inspirational speeches in favor of democracy in China, and told of the students who thronged halls to hear his criticisms of the government. Schell kept in close touch with Fang from the time the article appeared until Fang's withdrawal to the U.S. embassy in Beijing, shortly after the massacre of student protesters in Tiananmen Square, on June 4. Schell says that the *Atlantic* article increased Fang's prominence not only in the West but also in China. "It at once put him in a more dangerous situation and protected him," Schell says. Fang was allowed to talk freely to foreigners, in his Beijing apartment or over the telephone, and could even travel abroad, as he did to Australia and Hong Kong. But he was not allowed to address Chinese students.

The student uprisings were a sign that a new generation of protesters had taken up Fang's criticisms. Schell cautions against the tendency in the West to latch on to "celebrity dissidents," and points out that the students did not chant

Fang's name or treat him as a guru. "In an important but general way he prepared the path," Schell says, "and they went a step further." Despite Fang's notoriety, few Chinese knew what he looked like: the government banned photographs of him. Schell was able to go walking with Fang in Beijing and even eat at restaurants without attracting notice.

The last time the two men saw each other was on a "quiet, lovely" picnic at an unrestored Ming tomb near Beijing, two weeks before Fang sought refuge at the embassy.

Fang's protector within the government was Zhao Ziyang, who was deposed as Party secretary after the student massacre. (*The Atlantic* published an article by Zhao about economic reform in December, 1984.) When we went to press, Schell had had no contact with Fang since he entered the U.S. embassy. He worried that Fang might leave the embassy and attempt to resume his life as a critic, characteristically defying the recent suppression of intellectuals. "It's inconceivable to me that they would execute him," Schell says. "But it's inconceivable to me that they would have done many of the things they've already done." —THE EDITORS



Fang and Schell

CONTRIBUTORS

THOMAS J. MOORE ("The Cholesterol Myth") is a writer who lives in Washington, D.C. He has been an investigative reporter for *The Chicago Sun-Times* and the Washington bureau of the Knight-Ridder newspapers, and has served in government on the staffs of Senator Gary Hart and the Senate Select Committee on Intelligence. Moore's reporting has won awards from the National Press Club, the White House Correspondents Association, and the National Headliners Club.

SEYMOUR CHWAST (cover artist) was born in New York City and attended the Cooper Union School of Art and Architecture, from which he graduated in 1951. He was among the founders of, and is the director of, the studio now called The Pushpin Group. Chwast's work, in a variety of styles and media, has been exhibited widely in the United States, Europe, Japan, and Brazil. Examples of his work are included in the permanent collections of the Museum of Modern Art, in New York, the Gutenberg Museum, in Mainz, Germany, and other museums.

CAMILO JOSÉ VERGARA ("Hell in a Very Tall Place") is a writer and photographer who lives in New York City. He holds an M.A. in sociology from Columbia University, and has been the recipient of numerous grants and fellowships to further his work in urban architecture and design. His book *Silent Cities: The Evolution of the American Cemetery*, which he wrote with Kenneth T. Jackson, will be published this fall.

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WILLIAM MATTHEWS ("The Blues") is a professor of English at the City University of New York. A new book of his poems, *Blues If You Want*, will be published next month.

PETER DAVISON ("The Passing of This-tle") is *The Atlantic's* poetry editor. A collection of his poems, *The Great Ledge*, will be published next month.

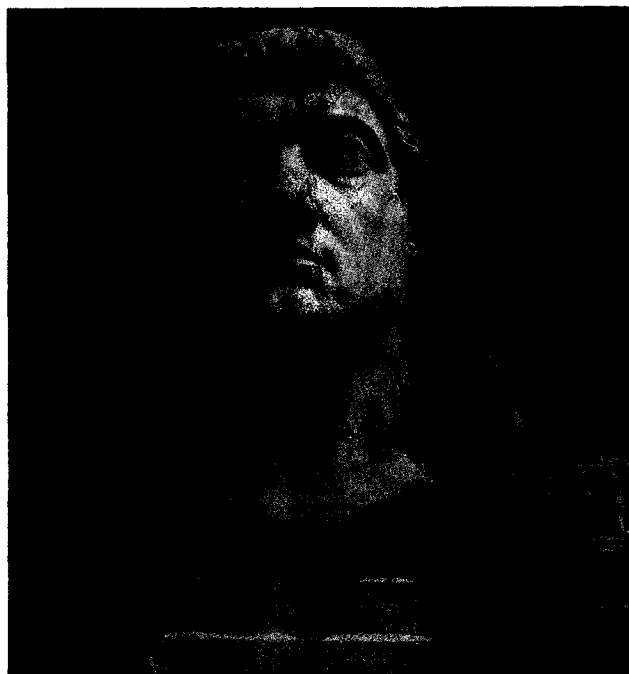
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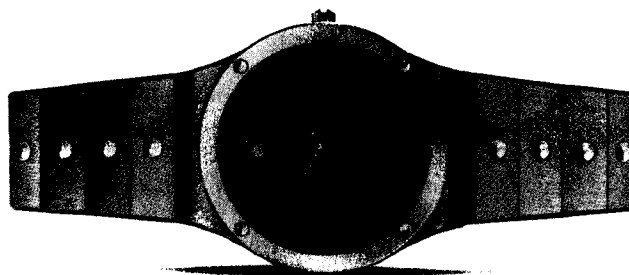
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LETTERS TO THE EDITOR

NATIONAL DEFENSE

Your series on the problems with U.S. defense policy ("Indefensible," June *Atlantic*) accurately diagnosed several of the symptoms of the sickness afflicting our national security. Of course, as the writers (largely) acknowledge, most of the ailments are not new (or even newly diagnosed). Deterrence has always been a "bankrupt military strategy," because of its absurd premise "You attack me and I'll commit nuclear suicide!" (Summers). The entire NATO project was designed to help revive the German and British postwar economies while the United States paid the military bills (Beatty). And it is certainly no secret that weapons procurement has long been a process much more akin to Soviet economic planning than to the free market, seemingly immune to reform (Stubbing and Mendel). If this were all that the articles revealed, they would have achieved no more than the eloquent restatement of the obvious.

But the careful reader might discern another thread in the defense fabric which the authors might not have meant to unravel. The assumption linking all this "strategic" thinking is that "security" and "defense" are terms with no meaning other than to justify amassing stockpiles of gold-plated, ineffective, and unusable killing devices larger than those of the "enemy." Hence Beatty's street-punk macho talk distancing himself from those horrible threats the "sandal-wearing pacifists" and the "Euroweenies." Hence Morrison's ridiculous crocodile tears over the Pentagon's acceptance of the "deep, painful, gouging cut" from its fantasy-world budget to the supposedly "modest" current figures.

If we as a nation really want to address the imminent risk of nuclear omnicide, if we really want to restore some small semblance of sanity to our budget priorities, if we really want to leave a livable world behind for our

children, then it's time to start rethinking the very notions of "security" and "defense." Perhaps we will learn to see what every school kid knows who picks himself up and dusts himself off after losing a playground tussle with the local bully: defense consists in being not stronger but smarter; in having not more rocks in your pile but more brains in your head. Security is built not on trillions of dollars for high-tech mutual-suicide machines but on creative thinking for education, the environment, health care, and housing which helps to eliminate the fear of "the other" represented in the military-industrial complex by the Soviet bogeyman.

WES HOWARD
Seattle, Wash.

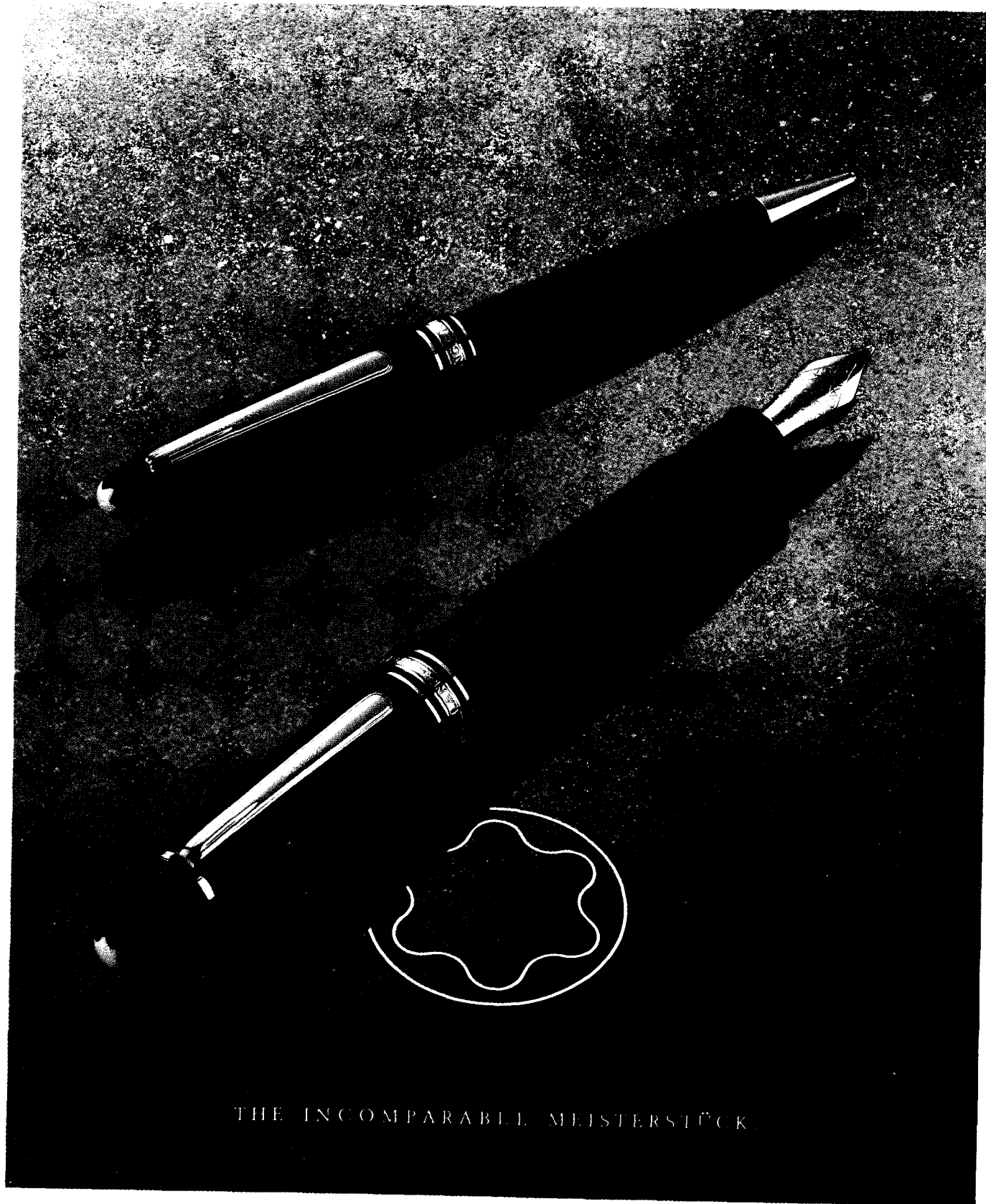
In "The Exorbitant Anachronism," Jack Beatty presents Congresswoman Pat Schroeder's complaints about the high cost of the U.S. contribution to NATO. U.S. expenditures, she says, enable European governments to spend tax revenue on things more socially useful than troops and armaments. "We are paying a hundred and seventy billion to defend Europe, where college is free," she says.

It is indeed free, in most European countries, for those who pass a rigorous national exam. If the United States were to adopt the European approach to higher education, we might also be able to provide a free college education for the smaller number who would be admitted to college, perhaps without reducing our contribution to NATO.

JOHN MAHER
Michigan City, Ind.

CONTAINING JAPAN

In "Containing Japan" (May *Atlantic*) James Fallows argues that the "one-sided and destructive expansion" of Japan's economic power is inflicting serious harm on the world's economy and particularly on the economy of the



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United States. He addresses issues that clearly perplex our political and industrial leaders. Unfortunately, Fallows, like so many others, misses the really serious threat that Japan presents to the rest of the world.

Japan is abusing the global environment in an almost endless number of ways. For example, its wood-using industries have been promoting the over-exploitation of Alaska's forests for years. Its whaling industry continues to slaughter the world's whales, threatening the very survival of those giants of the oceans and ignoring the wishes of most of the world's peoples to stop that slaughter. The successful and aggressive Japanese automobile industry actively encourages increased reliance on a dirty and wasteful mode of transportation that the global environment will not much longer be able to tolerate. Japan's ivory traders are spurring the destruction of Africa's elephant herds, in spite of the fact that those magnificent animals may be extinct by the end of the century. Its fishing fleets are strip-mining the world's fisheries, and its investment policies are strongly encouraging Brazil's destruction of the Amazon rain forest.

Rather than worrying so much about trade balances, Japan and all other nations must bend every possible effort to curing the rapidly increasing imbalance between human actions and the ability of the global environment to function properly. Failure to address that imbalance will guarantee worldwide disaster.

RICHARD S. BOOTH
*Cornell University
Ithaca, N.Y.*

The true reasons for Japan's domination of the world economy were illustrated in another magazine that appeared on the newsstand only weeks before James Fallows's article on the subject. Every April, *Consumer Reports* devotes an issue to car-buying. And this year, as in the past, we are reminded that Japanese cars are better designed, better built, and more reliable than those of any other nation.

The Japanese dominate the automotive, consumer electronics, semiconductor, and photographic industries. Eventually they will probably do the same in computers, aerospace, and pharmaceuticals. The Japanese are successful because their products are

better. The reasons are well known: They work harder. Their companies are vertically integrated. They plan for the long run. Their educational system works. And they don't have social problems on anything like the scale of ours, which sap national energy and resources. But none of this is new.

What is new is all the creative ways that Westerners devise for refusing to face the real problems. Almost any excuse will do, so long as it doesn't involve our working harder, planning better, or exercising more self-discipline in our personal lives. Fallows admits that "we have no business telling the Japanese how to run their own subtle, sophisticated society." But he spends much of his article doing just that. He is correct in pointing out how different our societies and philosophies are. But why are the Japanese the ones who should have to change? Their system appears to work better for them than ours does for us.

PETER NELSON
Chelmsford, Mass.

Japan's us-versus-them attitude needs to be seen in the perspective of that nation's vulnerability if we are to avoid taking retaliatory actions that prove disastrous. Japan is completely dependent on trade; it would literally starve in the dark if it were ever denied access to sea lanes. Japan is therefore ultimately at our mercy, and it is ridiculous to think that the Japanese government would not back down if our resolve to alter trade relations were made clear. Instead, we are still willing to agree to one-sided exchanges like the FSX deal.

Keep in mind when puzzling over Japan's high saving rate that its people were on the edge of starvation for several years after the Second World War, not just for the first winter, as in Europe. It is not surprising or unreasonable that people who faced starvation and then became prosperous are thrifty. In view of their vulnerability, it is also not surprising that they choose to put part of those savings abroad. The only way for Japan to get the dollars to make foreign investments is to export much more than it imports. My grandmother, who grew up in a poor village in Lebanon, was in her eighties still saving "for my old age." The next generation are consumers.

Let's not follow Britain in blaming

our economic decline on others. Our wounds are almost entirely self-inflicted. Nobody told us to liquidate our heavy industries. Nobody told us to put our best brains into litigation instead of technology. Nobody forced us to beggar our educational system. In fact the decline in our standard of living has been cushioned by the flow of cheap high-quality products from Japan and elsewhere that we have come to think it is below our station to produce.

CHARLES R. NELSON
*Professor of Economics
University of Washington
Seattle, Wash.*

Your May cover ("Containing Japan") was a classic example of disinformation. Considering that general rates of consumption are higher in the United States than in Japan, shouldn't you have shown an even fatter Uncle Sam next to your swollen samurai?

The really egregious obfuscation, though, was your warning that Japan's "runaway economy" will "harm the rest of the world if some limits aren't set." This curious assertion ignores the fact that toxic waste spewed into the sky, sea, and land has already harmed the rest of the world.

JOHN KNOPE
Lake Oswego, Oreg.

James Fallows says, "Japanese and Korean politicians now complain about American 'protectionism,' but how protectionist can a country with a \$10 billion monthly trade deficit really be?" His rhetorical question, and much else in his article, indicates the same kind of misguided thinking that is causing many members of Congress to demand that Japan be placed high on the list of trade offenders about to be compiled under section 301 of the Trade Act of 1988. One can only hope that Fallows's article does not contribute to America's growing desire to bite the hand that finances it.

The huge U.S. trade deficit vis-à-vis Japan and other countries is not a result of trade policy, either our own or that of other countries. Trade policy can affect only the shape of a trade deficit, not its size. Our trade imbalance has resulted from an eight-year-old unbalanced economic policy that has caused us to borrow huge sums of money annually from abroad. Why else would we have huge trade deficits when our



economy is running at full capacity? And why else would we have gone from surplus to deficit in our current account, even as the percentage of U.S. imports subject to trade restrictions has doubled over the past eight years?

In general, money taken from abroad is spent abroad, because it represents purchasing power not matched by domestic production. A capital-account inflow produces a current account outflow, irrespective of trade barriers. Obviously, any economy generates enough income-producing goods and services to buy those goods and services (measuring income and measuring sales, being assumed equal, are in fact the two supplementary methods of estimating GNP), and the United States does not need to borrow foreign money in order to buy its own production. The excess purchasing power caused by a capital-account inflow thus inevitably goes abroad and results in a deficit in the current account (which includes the merchandise trade account). The United States did not begin to run current-account deficits until it became an international

debtor, and its trade and current-account deficits have persisted despite the fall of the dollar and our raising of import barriers, precisely because it has continued to borrow from abroad.

As long as the United States borrows more than it saves and spends more than it makes, it will continue to run trade deficits, no matter how many foreign trade barriers are lowered or domestic barriers raised. We will not contain Japan until we restrain ourselves.

RAYMOND C. TOGTMAN
Palos Heights, Ill.

James Fallows replies:

When two people in a Japanese organization have the same name, they're often differentiated by labels, in the tradition of William the Conqueror and Ethelred the Unready. "The Good" and "the Bad" are the most common labels—"Watanabe the Good was telling me the other day . . ."

Let me start with Nelson the Bad, from Chelmsford. He provides no examples of my telling the Japanese that they have to change their society or business practices, because there aren't

Nelson the Bad's letter exemplifies one of the innocent American attitudes I was trying to change. Obviously there is a tremendous amount wrong with American industries, education, and budget policy. This is part of the reason for America's trade problems with Japan. But it is not the whole reason, any more than the simplistic idea that "their products are better" is the whole reason for Japan's trade surplus. Japan has a trade surplus because so many of its products are superb *and* because its system is biased against importing

high-value products that others make superbly. Of the manufactured goods consumed in 1986 by Germany, 37 percent were imported; of those by Japan, four percent. This difference cannot be accounted for by "hard work." As the yen doubled in value from 1985 to 1988, the prices that Japanese wholesalers paid for imported products plummeted. During that same period, as I know firsthand, retail prices barely budged—which denied consumers the main incentive to buy imports. There are quite obvious explanations for this (among them, a corporate and legal

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any. Not one line in my article said that the Japanese "have to," "should," or "will" change their way of life. (One line said that *unless* Japanese society changes fundamentally, Japan's businesses won't share power with foreigners. This was not an ultimatum; it was a way of indicating how unlikely the power-sharing is.) I wrote the article precisely because I don't expect Japanese society to change. Its intention was to ask outsiders, particularly Americans, to change their view of how to coexist most happily with Japan.

structure that discourages price competition inside Japan), but not ones that can be changed by American self-discipline. The United States, for its own self-respect and social cohesion, needs to save more, borrow less, and teach its children more about the world. This will reduce its overall trade problems, but will not change the difference between America's consumer-oriented system and Japan's producer-oriented system. Japan's system is not "unfair" or "wrong," but it is sufficiently different that neither free trade nor "hard



work" will ever balance trade accounts.

I agree with what Nelson the Good, from Seattle, says about Japan's motivation to save, and very strongly with Richard Booth's concern about environmental effects. To John Knope I say, I don't draw the pictures. By the way, the fat man in the loincloth was a sumo wrestler, not a samurai.

The U.S. budget deficit—and America's failure to save enough to cover its public and private borrowing—has obviously aggravated our trade problems, as Raymond Togtman points out, and this should obviously be corrected. But like Nelson the Bad and other admirably self-critical Americans, he is looking for too simple an answer. In the past four years, as the dollar has declined, the U.S. trade problem with Japan has remained more or less unchanged—while America, despite its budget deficit, has begun running a trade *surplus* with Europe. That is, there is a general American trade problem, but also a particular problem with Japan, which accounts for about half of America's total trade deficit. I was facile in saying that a \$10 billion monthly trade deficit proved by itself that America has a non-protectionist economy—but every exporter in every corner of the world recognizes that the United States is still the most tempting, available, and open market that exists, despite the increase in regulations.

IQ AND BIRTH RATES

R. J. Herrnstein ("IQ and Falling Birth Rates," May *Atlantic*) ought to come to Japan. He would find lots of company here among intellectuals who share his belief that national intelligence is preserved by elite families of superior races. He would also discover serious flaws in his statistics about Japanese education.

"Western European countries and Japan also fall short of the American standard, graduating fewer than 70 percent . . . of their high school students, and admitting far fewer of those graduates to college," Herrnstein writes.

In fact nearly 95 percent of all middle school (compulsory education) students in Japan go on to high school (voluntary), and all but about five percent of these graduate. Most of the 30

percent who go on to college also graduate, unlike U.S. college students, whose dropout rates are higher.

Herrnstein observes that Japan has a higher average IQ than the United States; argues that this difference "is usually attributed to the superiority of Japanese schools, *but . . .* is already present in the earliest years of primary school, and has grown in recent generations" (*italics mine*); and concludes that Japan's IQs may be higher because in modern Japan the fertility rate in dumb lower-class families has dropped as fast as the fertility rate in smart upper-class families.

Contrary to what Herrnstein suggests, there is no evidence that Japan's higher average IQ does not result from the early cultivation, in homes as well as schools, of the kinds of mental skills that are measured by IQ tests. Most children in Japan (including Koreans and other foreigners) attend two years of kindergarten. Then they spend more disciplined hours a day in grade school, more days a week, and more weeks a year, and they do more extra study, than U.S. children.

WILLIAM WETHERALL
Abiko, Japan

We hope that Professor Herrnstein's eugenicist jeremiad did not make readers too anxious about America's future. Perhaps some anxiety is justified, but not for the reason Herrnstein presents.

The belief that dysgenic breeding is lowering the national IQ is simply wrong. Every IQ standardization sample, and dozens of restandardizations have been done in the United States in the past half century, has performed better than its predecessors. The mean IQ of U.S. children would now be around 117 if the norms of fifty years ago had been maintained. IQs have been rising at a rate of about 0.3 IQ points a year since 1932, with black IQ scores rising at a somewhat faster rate. IQ tests are constantly renowned so that the mean always remains 100 and the score distribution remains the familiar bell curve. Similar IQ rises have been reported in Japan, the Netherlands, New Zealand, East Germany, and every other country where such data has been gathered. In the Netherlands the actual IQ score of the eighteen-year-old population has risen about 26 points over the past thirty-five years.

Reports in the popular press indicating that the Japanese are now more intelligent than Americans should be taken with large doses of soy sauce. An examination of the research publications on which that claim is based indicates no such thing. It seems that if a couple of statistical finagle factors are applied to the Japanese scores on tests (tests that are different from those used in the United States), some tiny difference in the pattern of performance between Japanese and Americans in certain age categories can be made to appear. Japan does not produce VCRs today because after the Second World War bright Japanese women had as many babies as their dull sisters.

NEIL WIENER
MICHAEL ZIEGLER
*Department of Psychology
York University
Toronto, Ontario*

The social and economic implications of falling IQ scores pointed out by R. J. Herrnstein should be of concern to anyone interested in elevating our civilization, or simply arresting its decline. The few concluding suggestions he makes for a more enlightened public policy, however, seem unlikely to succeed. In a political environment dominated by the issues of domestic poverty, lack of privilege, homelessness, and victimization, politicians (some of whom act as though already afflicted by the diminished brainpower Herrnstein foresees for the nation at large) get elected on their ability to fund programs for the less intelligent. Is it realistic to expect them to turn away from this expanding political base in order to enact legislation benefitting the brighter segment of the population, which has the least need of them? Encouraging bright men and women to raise more children might properly become a responsibility of the universities, along with the fostering of a political activism in behalf of their own high culture and values.

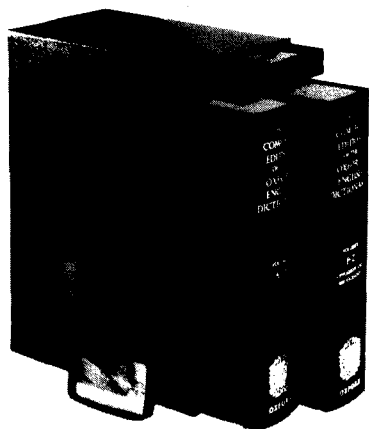
CRAIG BRIDGMAN
East Haddam, Conn.

R. J. Herrnstein replies:

William Wetherall suggests that it is mainly schooling, after all, that accounts for the higher average intelligence scores of the Japanese. Neil Wiener and Michael Ziegler, in contrast, assure us that Japanese scores are

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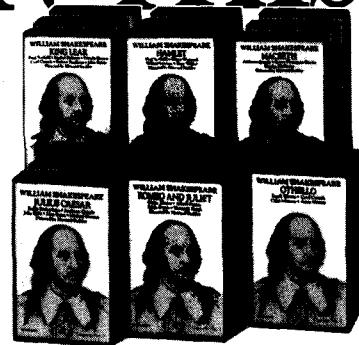
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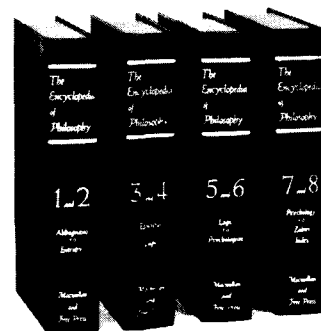
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not really higher at all. Neither argument squares with the observed higher average scores of people of Japanese descent in the United States and elsewhere in the world. Experts generally agree that Japanese, in and out of Japan, do have higher average scores, particularly on tests that draw on spatial or quantitative, rather than verbal, intelligence. The higher scores may be due to cultural or genetic factors or, most probably, some of both.

Wiener and Ziegler also say that IQ has not only not been falling but it would be rising except for the fact that the scores are renormed from time to time, so as to keep the average at about 100. They conclude that intelligence itself has been rising, not falling. The first part of what they say is correct, the remainder questionable. An IQ score is a measure of a person's relative standing in a population, based on a statistical transformation of the number of test items correctly answered. For some time testers have observed that the untransformed numbers of correct answers (the so-called raw scores) on intelligence tests have been rising. While the rise in raw scores is well known, it is another matter to decide whether it signifies much, if any, rise in intelligence itself. Raw scores could rise because intelligence is rising or because a population has become more "test-wise"—more facile with the kinds of items that turn up on tests or more attentive to the tests themselves—without experiencing any improvement in underlying intellectual aptitudes. Raw scores could even rise as intelligence fell, and vice versa—all while IQ remained a practical measure of intelligence.

In short, Wiener and Ziegler mention a fact that has no simple interpretation. But even if the average intelligence level has been rising (as they conclude, contrary to the judgment of some, perhaps most, testers), it remains the case that a negative correlation between fertility and IQ will, other things being equal, depress the average intelligence of the population, relative to a population for which the correlation is absent or weaker—such as, for example, the Japanese.

I find it all too easy to share Craig Bridgman's pessimism about the prospects for constructive public policies concerning fertility, and I see little sign that our universities are about to step into the breach. As I am writing this,

Congress is discussing child-care legislation that would be sharply skewed against relief for families at moderate and higher income levels, which, if passed, would compound the skew already present in the structure of allowed tax deductions for child-care expenses. Whatever good reasons there are for helping poor families with child care, our political process seems hard put to lessen the burdens of family life on the nonpoor.

REACTIONARY RHETORIC

Albert O. Hirschman ("Reactionary Rhetoric," May *Atlantic*) does a good job of showing how the "thesis of the perverse effect" has been used by conservatives reacting against civil, political, and social change. He implies that just as the thesis was inadequate to deal with the previous expansion of civil and political rights, it is inadequate to deal now with the expansion of social and economic rights, but he doesn't demonstrate this.

It may be that the thesis applies more fully in this instance than it has before. Lenin, Stalin, Mao, Castro, Pol Pot, and others have sought to build new societies based on the desire vastly to expand social and economic rights, and thus create social utopias. Their vision of Marxist progress inspired multitudes of followers. But surely the tens of millions of innocents killed, and the hundreds of millions forced to live under brutal oppression, would testify (if they could) that the thesis of the perverse effect is hardly a thesis in their case.

Communism, once considered the great progressive movement of our century (especially by intellectuals), has produced effects dramatically opposite its intentions—hence the understandable caution of "reactionaries." In this dreadful century history has been on their side.

MARC ROGERS
Topeka, Kans.

I enjoyed immensely Albert Hirschman's thesis of perverse effect. As a black, and a participant over the years in sit-ins, marches, and picketing, I have noted that on many such occasions well-meaning members of the majority culture felt a need to point out to us how these actions could not but

have the opposite effect of what we intended and desired.

Now as then, their lectures usually expand to include the pitfalls of higher education, the onerous burden of voter registration, even the dire health consequences of hard work and voluntary overtime. Mixed marriages, of course, engender their own complex negatives. Still, progress inches forward.

CLARENCE R. CURRIE
Gary, Ind.

Albert Hirschman's article substitutes argument for evidence. Except as a spotty review of "reactionary" literature, his essay is uninformative.

For example, Hirschman tells us that minimum-wage laws "conceivably could have a positive effect on labor productivity and consequently on employment." It is one thing to conceive benign effects; it is another, and more difficult, to develop evidence of them. Hirschman ignores the work of economists that shows such legislation to have a differential impact on workers of varied skills and, in particular, to have a perverse effect on the employment of persons with minimal skills.

In similar fashion, Hirschman prefers to imagine how the world works rather than to observe how things happen. Thus he thinks that "to the extent that policy-making is a repetitive, incremental activity, yesterday's experiences are continually incorporated into today's decisions, so that tendencies toward perversity stand a good chance of being detected and corrected." Such a dictum begs the question. Hirschman has no knowledge of the goodness of such chances, and his implicit learning theory is defective.

Learning from experience requires, among other conditions, *negative* feedback—lessons that *inhibit* actions. To learn in this fashion, one must experience the consequences of one's activity. But the trouble with efforts to improve the world by making and enforcing laws is that legislators and judges seldom feel the effects of their actions. Such immunity underwrites a psychology of political stupidity and assures the repetition of folly.

Hirschman's essay concludes with the Pollyanna suggestion that sometimes political activity has no unforeseen harmful consequences; sometimes it has benign effects, as planned; and sometimes it has unfortunate, un-

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intended consequences. Hirschman has no scale on which to weigh the balance of intended and unintended effects, benign and malign, in domains of individual and collective action. His optimism is misplaced in a century that was already the bloodiest in history before it was half gone.

GWYNNE NETTLER
Professor Emeritus
University of Alberta
Edmonton, Alberta

Albert O. Hirschman replies:

According to Marc Rogers, twentieth-century attempts at expanding social and economic rights have been far more bloody and disastrous than were earlier struggles for civil and political rights, so that the "perverse effect" has truly come into its own in our time. This is an interesting point, but I must register a few objections. In the first place, it's a rather odd observation to make in this bicentennial year of the French Revolution, when many historians are newly exploring the unprecedented and precedent-creating violence unleashed by that attempt to establish civil and political rights. Second, the dictatorships Rogers mentions derived from the suppression of political rights more than from the establishment of new socio-economic rights. When welfare-state programs were introduced in Western Europe and in this country, while basic civil and political rights were safeguarded, the consequences were hardly genocidal. Third, it may be true that perverse effects of "progressive" movements tend to be bloodier in the twentieth century than they were earlier, but this is surely because the technology of killing has vastly improved rather than because one kind of "progress" is intrinsically more perverse-effect prone than another.

I was much heartened by Clarence Currie's letter. He might have gone even further back into the history of his group and mentioned the many voices warning that Abolition was likely to be "counterproductive" (as the bland term goes today). Perhaps there is a basic moral rule underlying his and my refusal to be cowed by such allegations of the perverse effect. It was nicely expressed by Dr. Johnson when he wrote in *Rasselas* (1759): "Man cannot know so far the connexion of causes and events as that he may venture to do wrong in order to do right."

Gwynne Nettler takes me to task for not producing a full accounting of perverse and benign effects, or of costs and benefits, of social movements and actions. She would probably have wanted me to come up with a neat bottom-line assessment of various types of reforms and reform proposals, from universal suffrage to minimum-wage legislation. I must plead a much greater degree of modesty, as well as a different purpose, for my undertaking. She says that my article "substitutes argument for evidence," but argument *is* the principal evidence I was after in my piece. I have been looking through the writings of the major opponents of political and social reform not to find out whether they were right or wrong but to see what were the basic arguments they used as debating points. (In the book I have in progress, I identify several arguments other than that of the perverse effect.) It seemed to me worthwhile to demonstrate the extent to which discussions of the most varied proposals and programs evoke identical knee-jerk responses. I am naive enough to believe that exposing such rigidities on all sides (there will be a chapter on "progressive" stereotypes in my book) can make a contribution toward more productive discussions in a democracy.

Professor Nettler holds that learning from experience is virtually nonexistent among politicians because they are insulated from any "negative feedback" flowing from their decisions. A curious thing to say. It has been my understanding that one of the advantages of democracy is precisely that politicians are exposed to periodic "negative feedback," in the form of voters' failing to re-elect them.

WORD WATCH

I am from Poland, and I can confirm the origin of the expression *wolf ticket* (June Word Watch). According to the monumental *Dictionary of the Polish Language*, by W. Doroszewski, it is a term dating to the time of the czars of Russia. It is a "document depriving a person expelled from a school (or institution) of the right to be accepted by any other school or institution," obviously anywhere on Russian territory.

MRS. A.K.S. DYKE
St. Augustine, Fla.

The derivation of *wolf ticket* as reported in Word Watch is inadequate. The term *volch'iy bilyet*, meaning "wolfish ticket," originated in the USSR in the 1920s. After being dismissed from his job for reasons such as class origin or anti-Communist outlook, an "undesirable" person had an unfavorable code mark entered into his employment ID booklet. Since the resulting economic blacklist made the booklet's bearer unable to get any job except the worst possible—usually in Siberia, "among the wolves"—it became known as the wolfish ticket. Although the wolfish ticket was one of the most benign of the weapons used by the Soviet government to oppress its citizenry, it would lead to hardship and often starvation. In more recent years Jewish "refuseniks" seeking emigration have been similarly punished through loss of employment. The term *wolf ticket* may have been brought to the United States in the past decade by Soviet Jewish immigrants.

JOSEPH CHRONOWICZ
Jamaica Estates, N.Y.

Anne H. Soukhanov writes (January Word Watch) of *black mayonnaise*, "We have citations . . . going back as far as 1978." In "Sludge" (April, 1975, *Atlantic*) Tracy Kidder wrote, "Cok . . . described the wet sludge as 'a black mayonnaise. . .'"

JOHN CIKOSKI
Columbus, Ohio

ADVICE & CONSENT

I was surprised to see "Where the Boys Are" (February *Atlantic*) in your fine magazine. Brad Edmondson and Blayne Cutler suggest that women are more interested in finding husbands than men are interested in finding wives. This is an extremely sexist and archaic point of view.

In their metaphor likening the search for a husband to the game of musical chairs, the authors state that "counting out gay and incarcerated men may remove another chair." By the same considerations, women who are lesbians or incarcerated should be subtracted from the pool of marriage-seeking women (as should women or men who have chosen celibacy).

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HEALTH & SAFETY

Sales of the drug Ritalin—a stimulant that for reasons unknown has a calming effect on children—and its generic equivalents will rise sharply this month, as the 750,000 children in this country who have been diagnosed as hyperactive end their summer vacations and return to the classroom. The majority of children who are being treated for attention-deficit hyperactivity disorder (as hyperactivity is technically known) take medication only on school days. Hyperactivity, which is variously characterized by restlessness, a short attention span, poor impulse control, and learning difficulties, is the most common childhood behavioral disorder. It is also among the most controversial; in the view of many specialists, large numbers of children are being misdiagnosed as hyperactive, and Ritalin is being widely overprescribed.

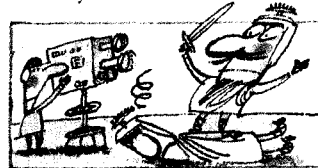
Q&A

Can animals be allergic to people? Animals have allergies, but hypersensitivity to *Homo sapiens* is not thought to be among them. Allergies occur with the same frequency in the human and dog populations, afflicting about one creature out of six, and human beings and dogs are allergic to many of the same things, including pollen and dust. Unlike human beings, however, dogs rarely sneeze or get a runny nose (they do get itchy skin), and don't ever become allergic to one another.



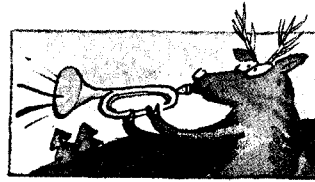
FOOD

The soybean harvest begins this month in the United States, the largest producer of soybeans in the world. The U.S. soybean industry is in a state of high activity these days, pressing to expand markets at home and abroad. The American Soybean Association has used aggressive advertising to exploit consumer concern about imported tropical oils that are high in saturated fats; imports of palm oil have dropped 35 percent in the past two years, with soy-based vegetable oils taking up some of the slack. Abroad, U.S. soybean producers recently cracked one promising new market: the Soviet Union. The Soviets have gone from importing no U.S. soybean meal to importing more (\$321 million worth from last October to last April) than any other country.



ARTS & LETTERS

September 8, International Literacy Day. 9, the premiere of the new weekly television series *American Gladiators*, in which average citizens from across the country—provided they are physically fit, personable, and “can think on their feet,” according to a spokesperson for the show—will have an opportunity to battle gladiators of both sexes in a variety of presumably astonishing contests. Culled from a Los Angeles casting call, the gladiators will project specific characters. Some examples: Zap, “the prototypical girl next door,” and Willie, “a streetwise tomboy.” Under the Roman Republic, according to *Harper's Dictionary of Classical Literature and Antiquities*, “the profession [of gladiator] was considered degrading . . . though to some it had many attractions.”



ENVIRONMENT

This month woodlands and meadows in the Rocky Mountains will ring with the weird bugling call of the male elk, signaling that another rutting season has begun. For the next several weeks frenzied bulls will bugle, wallow in mud, rip at plants and the ground with their antlers, and engage in ritual combat with other bulls, all in order to advertise their presence, dominance, and readiness to breed. The successful ones will collect a large enough harem that servicing and protecting it may prevent them from eating and sleeping much; mature bulls can easily lose a hundred of their 700 or 800 pounds during the fall rut.

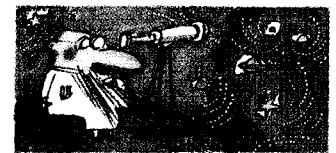
GOVERNMENT

September 1, employers must be in compliance with some 2,100 pages of new U.S. labor regulations governing the safe use of chemicals. 5, by this date the President must submit to Congress a report from the nation's top drug fighter, William Bennett, outlining a plan for curbing drug abuse. Bennett has already suggested fining the parents of young offenders, impounding the cars of offenders, and sending convicted felons in drug cases to prisons run like boot camps. 6, Congress reconvenes; in Chelsea, Massachusetts, in an experiment that may have national implications, the troubled public schools reopen under a controversial contract that places the school system in the hands of Boston University.



DEMOGRAPHICS

September 10, National Grandparents Day. Of the 72 million Americans over the age of 45, some 50 million are grandparents; half of all Americans over age 65 are great-grandparents. Owing to increasing longevity and rising rates of divorce and remarriage, some 8 percent of American children today have more than four living grandparents and step-grandparents. The average American 40-year-old married couple today has more living parents (2.6) than children (2.2).



THE SKIES

September 5, Pluto reaches its perihelion, or point closest to the sun; it will not reach perihelion again until 2236. 15, Full Moon. 22, the Vernal Equinox, marking the beginning of autumn in the Northern Hemisphere. Jupiter and Saturn are the only planets visible with the naked eye this month, the one high in the south at sunrise, the other low in the southwest at sunset. 29, New Moon.

75 YEARS AGO

Ralph Barton Perry, writing in the September, 1914, issue of *The Atlantic Monthly*: “There is a false proverb which teaches us that whatever is worth doing is worth doing well. I call it false because it is so evident that there are some things which are only worth doing provided one is willing to do them ill. It is a part of . . . wisdom to know what it is worth while to exert one's self about, and what may be done in a spirit of playful carelessness. But there is a more popular maxim which is so widely observed that it is never formulated—the maxim that whatever is done well is worth doing.”

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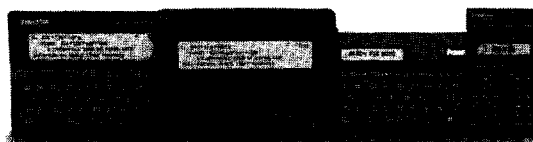
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This proposal to fund toxic waste cleanup is designed to keep the environment green.

One of the most crucial public policy problems facing America today is the gridlock that has tied up our national attempt to deal with toxic waste. Not only does this issue affect the quality of the environment, it represents a major economic challenge as well.

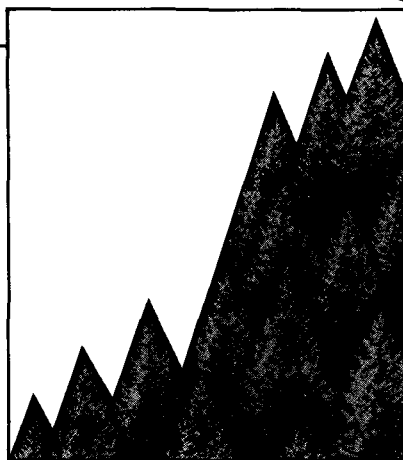
Studies by government agencies estimate that at least \$150 billion will be required to rectify hazardous waste sites that dot the U.S. landscape. Other research says that the costs could be higher.

This leads to the key question: How do we raise that amount of money without shackling the economy's ability to create jobs and compete internationally? As this suggests, economic forces are at the heart of the inaction on cleaning up the environment.

When the legislation designed to do that job—commonly known as Superfund—was renewed in 1986, the intent was to deal with the country's highest priority waste sites. Yet to date only a few of them have been addressed.

How did we reach this state and what can be done to change it? We must deal with four basic factors to answer that:

One: The current method used to assess and collect funds to clean up our old, known and often abandoned waste sites is founded on the principle of strict retroactive liability. This means that companies are being held responsible for environmental damage that occurred twenty or thirty years



ago, or even longer. That's true even when those companies did not violate any waste disposal laws, or act deliberately or irresponsibly.

Two: It is enormously costly and difficult—and sometimes impossible—to find out who is responsible for pollution at most older waste sites. The contamination occurred over decades and often the sites were common dumping grounds. Consequently, governments at all levels

are spending huge sums in their attempts to find polluters and fix liability.

Three: The staggering costs of cleanup are a major impediment to progress on improving the environment. The average price per waste site is \$25 million and can range up to several billion dollars. With stakes this high, it's impractical for any one party to bear the entire financial brunt of what amounts to a broad public problem. Even major corporations would be strained. The result? Fewer new jobs created and a reduced ability of American business to compete internationally. To be sure, we cannot look to government for more money given the federal deficit and the pressure on state and local government budgets.

Four: With the above three factors at work, our environmental efforts have bogged down in a morass of litigation. Most of the action is taking place in court, instead of at the waste sites. In some cases, even when insurers did not

And do the same for the economy.

cover pollution damage, there's been an inclination to look to the insurance industry as a public treasury when no other sources are available to pay the cleanup costs. But that's no solution since the total environmental price tag exceeds the surplus of the entire United States insurance industry.

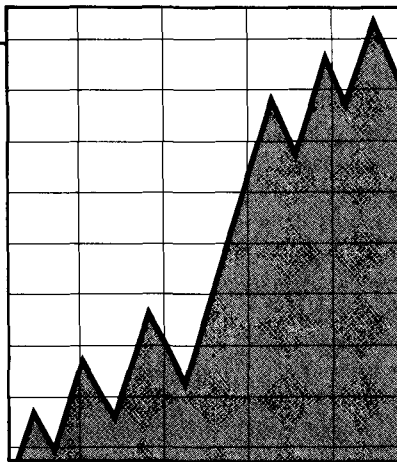
A Proposed Solution

So we come back to the central question: How can we fund our national program to restore the environment? At AIG, we believe the answer lies in spreading the costs more broadly and equitably.

This could be accomplished if we created a National Environmental Trust Fund, which would be administered by the Environmental Protection Agency. This would be a dedicated fund whose resources would be used only to clean up hazardous waste sites.

The Fund could be financed by adding a separate, earmarked fee to the commercial/industrial insurance premiums now paid in the United States.

Even a modest assessment could provide enough money to deal with the 1,000 highest priority waste sites over the next decade. This approach would not require a new government agency



or new taxes. The fee would replace the current method of environmental taxation to give Superfund a new, more effective way to finance its mission.

The new Trust Fund would address only the old waste sites where responsibility for the pollution is not clear. Any environmental damage occurring in the future, or that resulting from deliberate acts, would be dealt with on a fault basis with the polluters paying.

The National Environmental Trust Fund thus recognizes the effects of past pollution as a national problem. It would avoid imposing an excessive financial penalty on any sector of business—or the economy as a whole. Most important, it would eliminate much of the endless litigation over pollution and enable us to get on with the job of cleaning up the environment.

This is a general outline of a new approach to an old

problem. We've purposely presented it this way to stimulate a dialogue and to elicit ideas on the details of how a National Environmental Trust Fund should be implemented.

Please address your comments to: M. R. Greenberg, President and Chief Executive Officer, American International Group, Inc., 70 Pine Street, New York, New York 10270.

American International Group is the largest underwriter of commercial and non-admitted surplus lines in the United States and the leading U.S.-based international insurer. The nature of our business requires we deal every day with issues affecting the future of American and world commerce. We have established this forum to draw attention to the importance of addressing these issues.

AIG

REPORTS & COMMENT

NOTES

The Tithe

Doing the right thing by posterity

THE CARTOONISTS Dik Browne and Mort Walker once wrote a book called *The Land of Lost Things*, in which a little boy, having become separated from his parents, finds himself in the mythical place where all lost things go. The bewildered boy is surrounded by car keys and mittens and teddy bears, by baseball gloves and twinless socks. Eventually, of course, he makes his way out.

The land of lost things, settled entirely by immigrants, has its share of emigrants, too—of things that return, often after long absences, to the world they came from—and the emigrants are almost always welcomed back with warmth and delight. I was reminded of Browne's book not long ago by news of the chance discovery in London, during construction of an office complex on the Thames, of the foundations of the Rose Theatre, where Shakespeare's first plays were performed. The event aroused enormous public support for the preservation of the site.

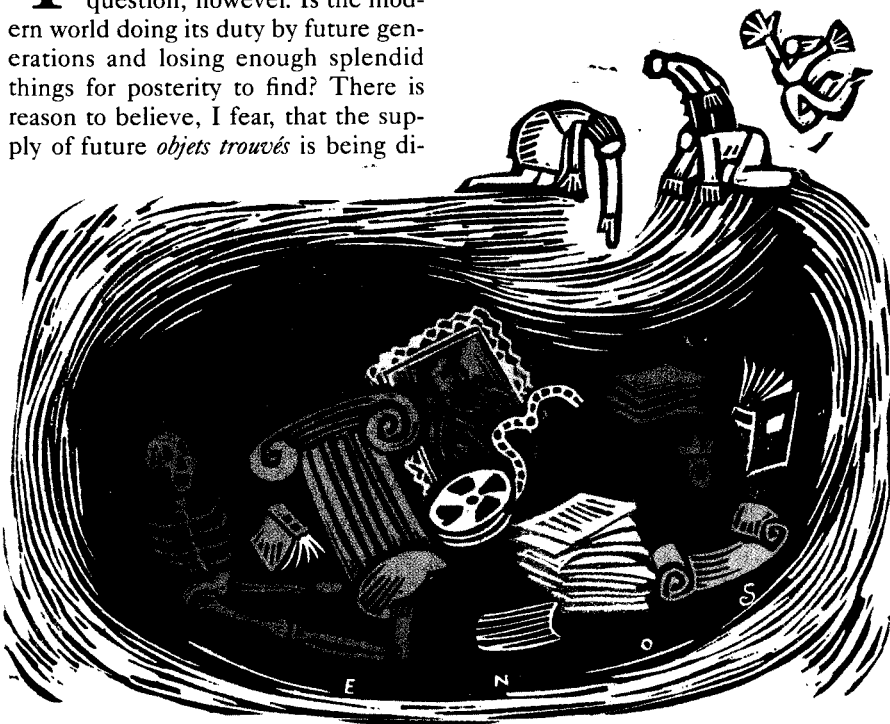
Several years ago a stir was created by the discovery in Greece of the remains of Philip of Macedon, a man who paid tuition bills to Aristotle, and whose tomb no one had ever hoped to find. Earlier, Leonardo's notebooks, Boswell's diaries, and the Dead Sea Scrolls won broad public interest and acclaim when brought to light after many centuries.

As a teenager, I started saving news-

paper accounts of discoveries like this—"33 BACH ORGAN PRELUDES ARE DISCOVERED AT YALE"; "A SCHOLAR'S FIND: SHAKESPEAREAN LYRIC"; "SOVIET WRITER SAYS HE HAS FOUND BODIES OF CZAR AND FAMILY"—but the seas of time washed the yore upon the now so regularly that finally, with Canute-like resignation, I gave up. Yet each new report in the press ("CHESTERTON APHORISMS FOUND IN 2D WRITER'S BOOK") provides a curious sense of reassurance. Even when the discoveries contribute nothing of importance, really, to our stock of knowledge or beauty, they at least suggest that though the past may one day lock us up, it won't necessarily throw away the key.

THE UNCOVERING OF the Rose Theatre raises a disturbing question, however. Is the modern world doing its duty by future generations and losing enough splendid things for posterity to find? There is reason to believe, I fear, that the supply of future *objets trouvés* is being di-

minished in two ways. On the one hand, what we wish to destroy is today destroyed with an absoluteness of which the ancients were rarely capable, and to which they rarely aspired. For example, no equivalent of a Wailing Wall remains from the original Madison Square Garden. On the other hand, a growing preservationist impulse, combined with the advent of mass production, makes it harder for many things to become lost in the first place. Will a copy of *The Godfather* ever not exist? There is a remote possibility, I suppose, that statistically the matter is a wash—that because we are making so many more things than we used to, the same number of significant artifacts might be left behind as have always been. But I don't think so. During the past two decades, for example, only a couple of



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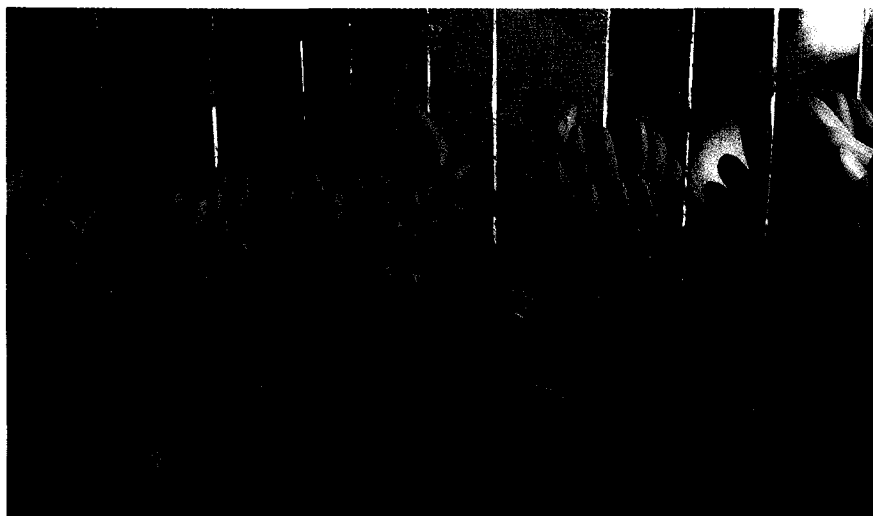
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things have gone missing that our grandchildren would be excited to find: eighteen and a half minutes of a tape recording made in 1972, and Jimmy Hoffa. Compare this dismal legacy with that of a typical year in antiquity—612 B.C., say, when the entire city of Nineveh was consigned to oblivion in a single day.

The time has come, I think, for concerted action. I would propose the levying of a national tithe, whereby a certain percentage of what is new and of social or cultural importance—10 percent seems about right—is simply squirreled away in some odd place. Under such a regime (to illustrate) Philip Roth would not actually have published his tenth novel, *The Professor of Desire*, but instead would have delivered the manuscript to a government functionary, who in turn would have deposited the work in a trunk (say) in the attic of a country house in Scotland (say); the functionary would then have been sworn to secrecy, or shot. A similar procedure could be followed with paintings, television shows, movies, presidential documents—anything, really. The bodies of some of our significant dead (perhaps every tenth person whose passing is noted in *Time*'s "Milestones" column) should be treated in the same way. The English have been doing this willy-nilly with their monarchs from the start. King Edward the Martyr (975–979) didn't turn up until 1931, when he was found by a gardener in Dorset; he was stored until recently in a cutlery box in Woking, England, pending the outcome of litigation. The whereabouts of William the Conqueror (1066–1087) are unknown to this day, save for a single thigh bone, discovered in France in 1987.

One last detail. Much of what turns up unexpectedly raises piquant problems of identity. Those bones of Philip's—are they really his? That Shakespearean lyric—Shakespeare's? This vexing quality adds mystery and spice, and ought to be encouraged. I see no reason, for example, why the title page of the hidden *Professor of Desire* might not conveniently have become detached, or why some future pope should not be buried, in full regalia, in Muncie. We may not be around for the headlines, but we will have had our fun.

—Cullen Murphy



GEORGE H. HARRISON/GRANT HELMAN PHOTOGRAPHY, INC.

Bunches of mature bananas, ready to ripen during shipment from Colombia

AGRICULTURE

The Best Banana Bred

New hybrids may save the banana industry from destructive diseases

LAST YEAR the United States imported more than 6.3 billion pounds of bananas. That's a banana a week for every man, woman, and child in this country, or over twenty-four pounds a year each, or three pounds more than our annual per capita consumption of apples, the next most popular fruit. Nearly all the bananas we eat are grown in Honduras, Costa Rica, Colombia, and Ecuador (they aren't called banana republics for nothing). For example, Ecuador, the world's leading exporter of the fruit, shipped nearly 1.6 billion pounds of bananas, worth \$158 million, to the United States last year. Honduras shipped \$190 million worth. Bananas account for between 35 and 40 percent of export earnings in Honduras and around 20 percent in Costa Rica.

Yet despite the enormous demand for its produce, the multibillion-dollar banana industry is in trouble. In 1972 plantation workers in Honduras discovered a fungus called black sigatoka, which attacks the banana plant's leaves, preventing photosynthesis. Within a decade the disease had spread

throughout Central America, and by 1979 it had reached Africa as well. Central and South American growers spend \$60 million annually fighting black sigatoka, and in Honduras, where the infection has the strongest hold, battling the fungus generates the largest single cost of growing bananas. Worse still, the fungus also attacks the plantain, a starchy cousin of the banana which is a staple in many parts of the world. In Africa, where millions of people depend on bananas and plantains for the equivalent of their daily bread, black sigatoka has the potential to cause widespread famine.

Banana-eaters around the world may have a savior, however, in Phillip Rowe, an American plant breeder working in Honduras. Rowe, fifty, has spent the past two decades at a research station in La Lima, on the lush Caribbean coast of Honduras, breeding the world's first disease-resistant hybrid banana. It is also certainly the world's most expensive, having cost many millions of dollars thus far. "We have a banana now that would do in an emergency," Rowe says. "By the 1990s people will be eating a whole new banana, and most of them will never know the difference."

Since the late nineteenth century, when *norteamericanos* first went bananas for bananas, Latin American plantations have grown just two varieties of the fruit. The first was the Gros Michel, a native of Southeast Asia, which was brought by the French to the Caribbean more than two hundred years ago. The Gros Michel was big, sweet, and, most important, capable of

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withstanding a two-week voyage in the hold of a ship. Although other bananas actually taste better, the Gros Michel and the later commercial variety, the Cavendish, are prized by exporters because they are large and easy to ship; one of their best features is that all the "fingers" on a stalk ripen at once, about three weeks after they are picked. As they mature, bananas exude ethylene gas, which triggers ripening in fruit nearby. With the commercial varieties, it's less likely that one banana in a box will ripen early and spoil the lot.

The Gros Michel had one drawback, however. The plant was plagued by two diseases: yellow sigatoka, first detected in 1904 in the Sigatoka Valley, in Fiji, and a soil-borne fungus called fusarial wilt, or Panama disease. Panama disease was by far the more serious of the two. Yellow sigatoka could be controlled by spraying, but no cure is known for Panama disease, which spreads through irrigation water and kills the plant. United Fruit, the largest of the three American conglomerates that dominate the banana business, managed to stay one step ahead of the fungus, almost literally, by moving its plantations to uninfected lands. By the early 1960s, however, no more land was left, and growers were forced to replant their fields with the Panama-disease-resistant Cavendish variety. The Cavendish, which looks, tastes, and ships much the way the Gros Michel does, is virtually the only type of banana that appears in American grocery stores today.

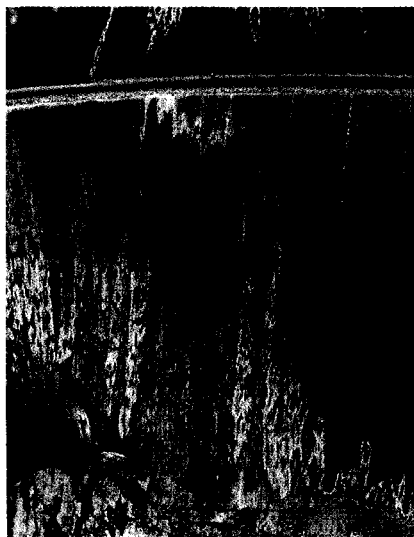
Now the Cavendish is threatened too. Black sigatoka is far more virulent than its predecessor. It attacks the plant's leaves, creating spots of blackened, dead tissue. The spots spread, eventually killing the leaf, while an unknown by-product of the fungus causes the fruit to ripen prematurely. Left unchecked, the fungus would reduce the yield from each plant by 30 to 50 percent, and growers can control outbreaks of black sigatoka only by aerial spraying.

In 1969, after Panama disease had forced growers to switch to the Cavendish but before the onslaught of black sigatoka, Rowe, who has a Ph.D. from Michigan State University, arrived in Honduras with his wife to work for United Fruit. "The company had the good sense to realize that if disease

could appear once, it could happen again," he says. "Nature had provided us only two varieties suitable for export—the Gros Michel and the Cavendish—and if we had to change again, we would have to breed new ones."

Rowe set to work searching for natural resistance among nearly 850 varieties of bananas, wild and cultivated, that United Fruit had gathered around the world from 1959 to 1961. Most of them had originated in Southeast Asia, including the Cavendish, which had been discovered in a botanical garden in Saigon. Once Rowe had selected the disease-resistant plants, he began crossbreeding them to develop a hybrid suitable for commercial use.

By the early 1980s United Fruit had spent upwards of \$10 million on the



Black-sigatoka lesions on a banana leaf

project, and no superbanana was in sight. The company decided to withdraw when it realized, belatedly, that it could not hope to patent the eventual fruits of Rowe's labor, and thereby keep them from competitors. United Fruit donated its botanical collection and its research facilities to the Honduran Foundation for Agricultural Research (FHIA), a private scientific organization established in 1984 with the help of a ten-year, \$20 million grant from the U.S. Agency for International Development (AID). "They also donated their plant breeder," Rowe says. He now supervises about forty people as the head of FHIA's banana-breeding program, which is considerably larger and further along than any of the three other banana-breeding projects in the world.

For plantation owners Rowe's new banana will be ready none too soon. Black sigatoka is growing immune to one fungicide after another—thus far growers have gone through three. (The fungicides act only on the leaves and do not reach the fruit.) But growers are helpless in the face of a new variety of Panama disease. The original form of the fungus, called race one, has mutated in some parts of the world, giving rise to three new races. Race four, the most virulent of them, is now attacking banana crops in Taiwan, South Africa, and Australia.

"Panama disease has no respect for anything," says Christopher Millensted, one of FHIA's founders and currently its director of development. "Soils in Latin America are loaded with it, and once it mutates, it could attack any banana variety. If the mutation that has already happened in Taiwan occurs here, the Cavendish is in grave jeopardy, and I wouldn't put a buck on the table and say that it's not here already." Fortunately, two years ago Rowe found a race-four-resistant banana in the botanical collection. This banana's genes will have to be incorporated into his hybrid.

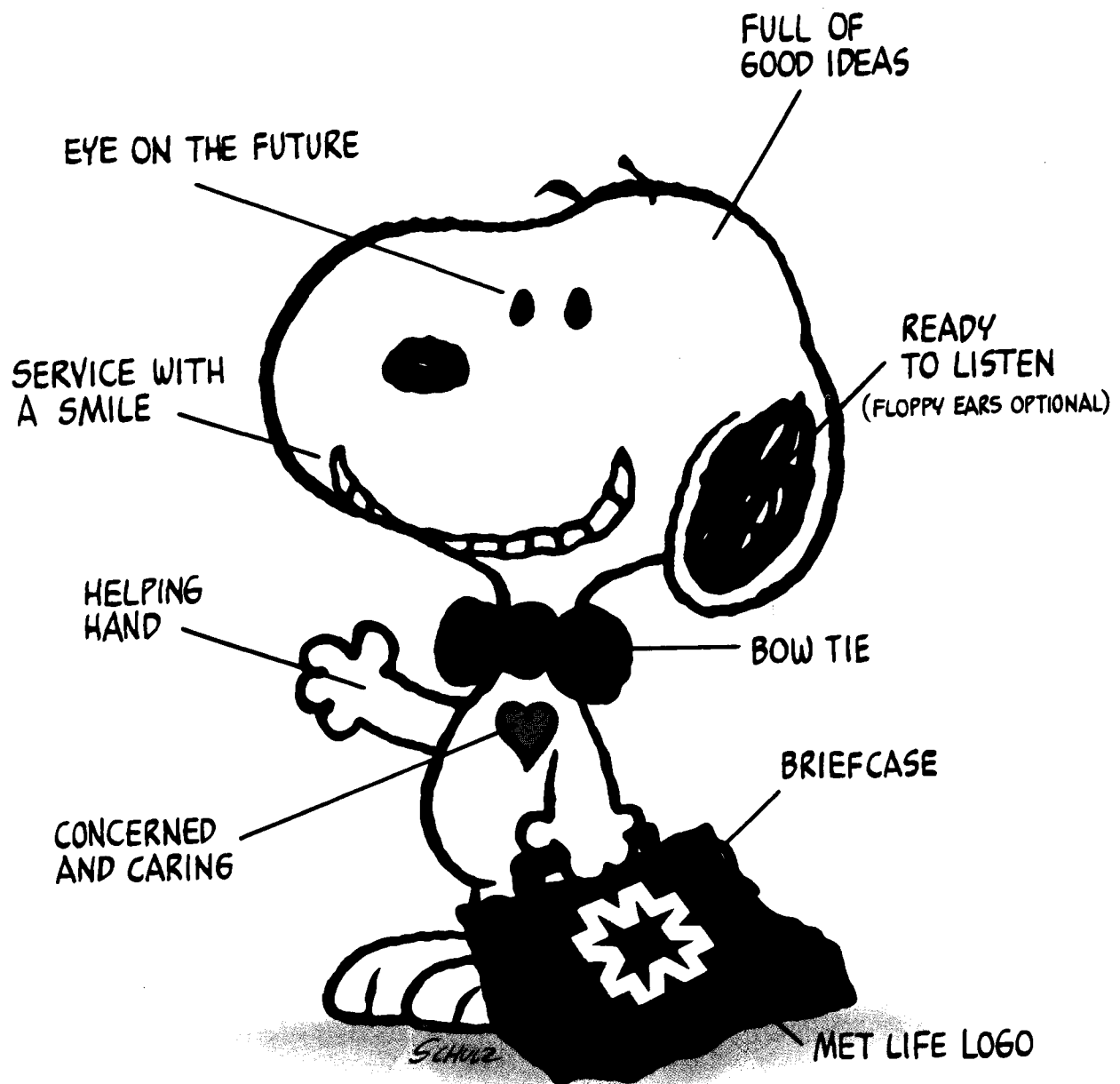
AS IMPORTANT AS Rowe's work is to the banana industry, it is vital to the millions of people who depend on bananas and plantains for food. World production of bananas and plantains is about 68 million metric tons a year. The total world export trade in bananas is only seven million tons, and trade in plantains is a fraction of that, which means that both fruits are much more important as local food crops than as export commodities.

Black sigatoka has devastated the plantain in Latin America. AID estimates that the area planted in plantains in Central America has decreased 50 percent since black sigatoka spread throughout the isthmus. Production of plantains has fallen off by more than half, and a third of producers have abandoned their fields. Plantain farmers could control the fungus by spraying, Rowe says, "but most of them can't afford it."

Worse still, black sigatoka has spread to Africa, where virtually all of the 24 million metric tons of bananas and plantains produced are consumed locally. The telltale spots first appeared on plantain leaves in Gabon in 1979.

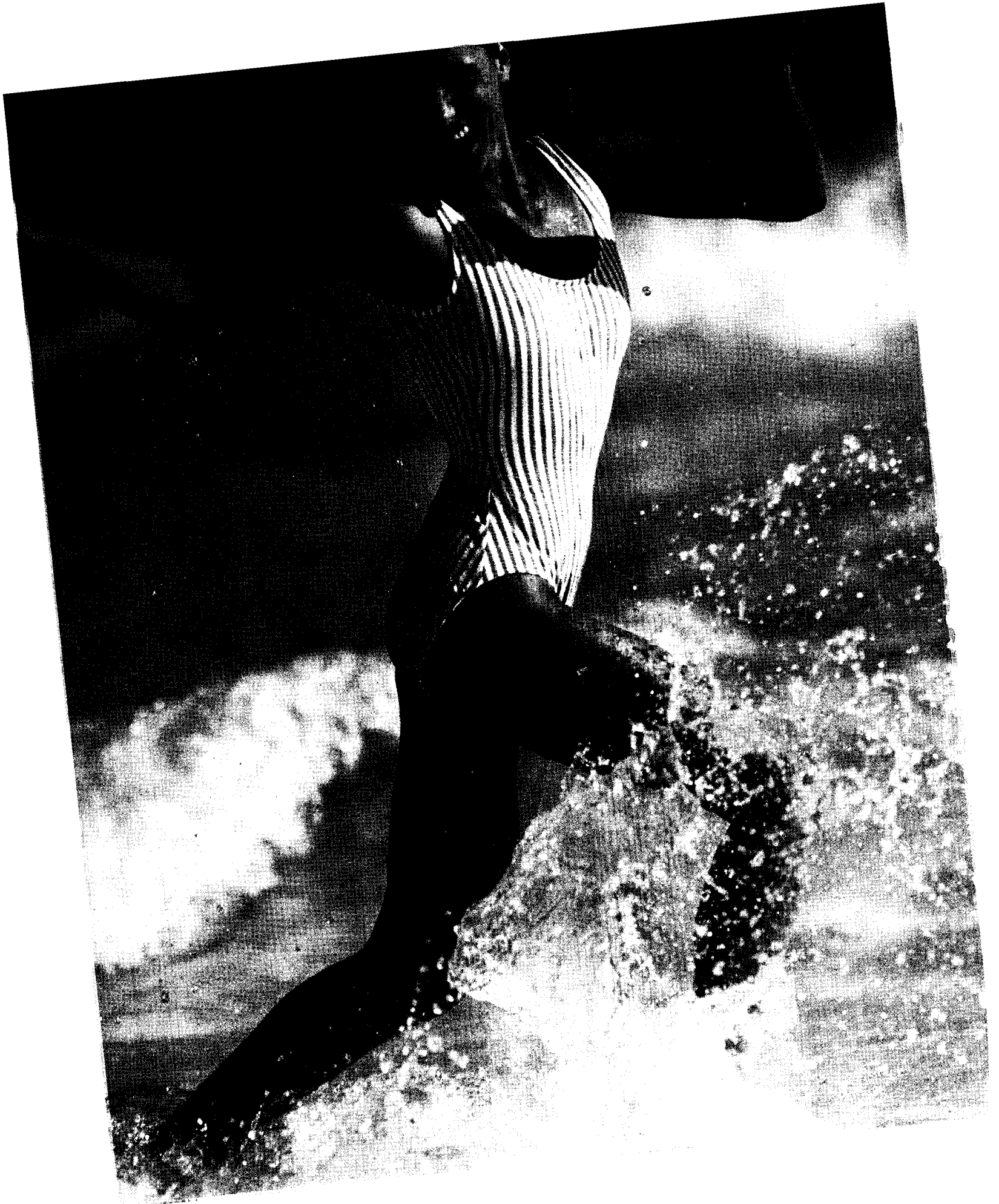
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The fungus quickly swept across the continent, its spores blowing from plant to plant in the wind; it is now found in every equatorial nation except Uganda. "What frightens me more than anything is what is going to happen to East Africa if we don't get a black-sigatoka-resistant variety soon," Rowe says. In tropical Africa the banana and the plantain are dietary staples for millions of people. Seven to eight million Ethiopians eat the starchy center of the stem of the ensete, or Abyssinian banana (whose fruit is inedible). In West Africa millions of people eat plantains. Twenty million East and Central Africans each consume as much as 500 pounds of bananas a year. They pick their bananas green, when the starch has not yet turned to sugar, and roast or steam them.

According to Stephen Carr, the principal agriculturalist of the Africa Technical Department of the World Bank, East Africa will be the region hardest hit by black sigatoka. "We think black sigatoka is really very serious," he says. "The areas where it's advancing in East Africa are extremely densely populated. People are squeezed onto pocket-handkerchief-sized pieces of land. For fifty percent of the population of Uganda, bananas are the dominant staple. The same is true for parts of Rwanda, Burundi, Zaire, Kenya, and Tanzania. In all of these areas a substantial part of the population is dependent upon bananas for eighty percent of its carbohydrates. Bananas are a good perennial crop, they don't deplete the soil, and an acre and a half of bananas will feed an entire family. If you had to replace that with an annual grain crop, you'd be in real trouble."

All told, AID and the World Bank estimate, anywhere from 50 to 100 million Africans will be affected to some degree by the encroachment of black sigatoka. "Black sigatoka is devastating once it becomes uniformly spread," Rowe says. "If it spreads as projected in the areas where it has already appeared, it's going to cause famine in three to five years."

Rowe's work on a hybrid commercial banana could well save both the Latin American banana industry and the populations of parts of equatorial Africa. Rowe has already made considerable progress in crossing plantains with the disease-resistant bananas that he

has spent the past two decades developing. "It's a little like breeding elephants to improve giraffe stock," Miltensted says, admiringly. Rowe has recently begun working with the East African cooking banana, which grows at altitudes of 3,000 to 9,000 feet, to incorporate it into his program.

BREEDING A NEW banana, however, is a lot more difficult than breeding a new hybrid of wheat, say, or a tomato, because the genetics of edible bananas are quite peculiar. Unlike most bananas—and, in fact, unlike most other organisms on Earth—the Gros Michel and the Cavendish are triploids, which means they have three sets of chromosomes instead of the usual two.



R.H. FULTON

What the hybrids will be replacing

This condition, known as triploidy, is what makes edible bananas edible and the Gros Michel and the Cavendish so attractive commercially, because it causes their fruit to be large, hardy, and seedless. (Those tiny dark specks in the center of a banana from the supermarket are infertile vestigial seeds.) Diploid bananas, those with two sets of chromosomes, contain scores of seeds as big as half a pencil eraser and hard enough to break your teeth.

Seedlessness poses no problem for growers. All bananas can be propagated by rhizomes, which are shoots that the banana plant sends out beneath the ground; new plants grow up from the rhizomes around the parent stalk. Growers can uproot the sprouting rhizomes and replant them, or they can

cut a tiny piece from a rhizome's growing tip and clone dozens of new banana plants in a petri dish.

Seedlessness does, however, make difficult the job of the plant breeder. Since the Gros Michel and the Cavendish have no seeds, they are technically sterile, and an organism that cannot reproduce cannot be crossbred.

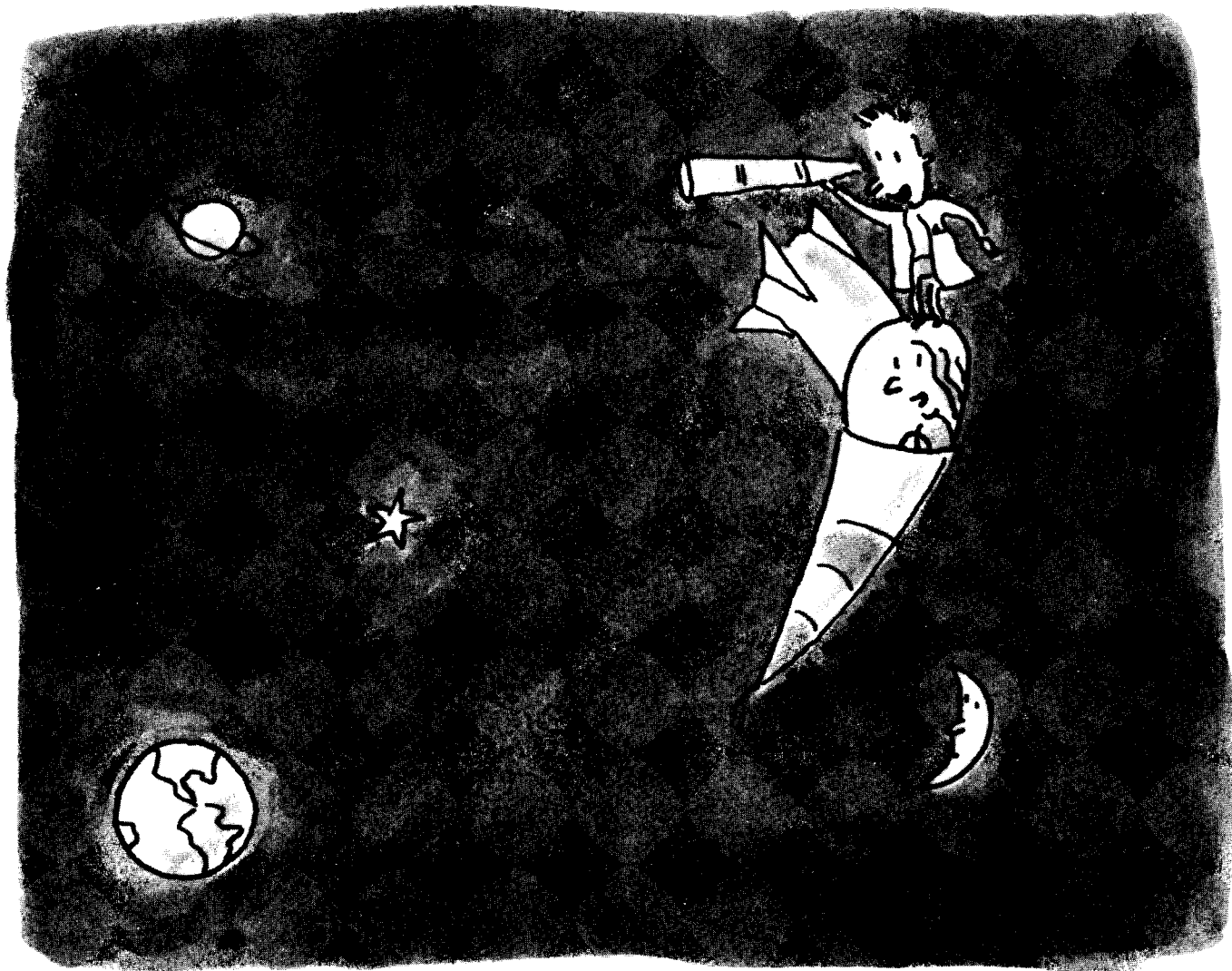
Fortunately, certain subvarieties of the Gros Michel can be forced to produce seeds if their female flowers are fertilized by hand with pollen from diploid bananas. But this laborious process yields very few seeds, only two or three a bunch, and in breeding for some characteristics Rowe needs as many as 10,000 bunches to produce a single seedling. "You have to go through a lot of bananas to get a few seeds, and we need a lot of seeds," he says. "We plant from five to ten thousand plants a year for each subsequent pollination, and it takes about three years from seed to seed."

To complicate matters, when Rowe crosses the Gros Michel with his disease-resistant diploid bananas, the offspring he creates are tetraploids—bananas with *four* sets of chromosomes. Tetraploids, like diploids, make seeds. To get a commercially suitable triploid, Rowe must now back-cross a tetraploid to a diploid. Recently he has come up with tetraploids and diploids that he considers good enough to use in producing the ultimate banana.

One tetraploid in particular looks very promising. In its pedigree is a banana from Burma—and ten other types. It's completely resistant to black sigatoka as well as to a number of other banana blights. Unfortunately, it is also full of seeds, is susceptible to Panama disease, and has a flavor very different from that of the familiar Cavendish.

Still, in banana-breeding terms, success is just around the corner. "We fully expect to get a triploid that will be a good export banana in the next five years," Rowe says. "You have to understand, that's a very short time—only about two or three more crosses. The beautiful thing about the banana is, once you get a plant with the characteristics you need, you can then produce it vegetatively, by rhizomes. And we expect it to taste as good as or better than the Cavendish."

—Shannon Brownlee



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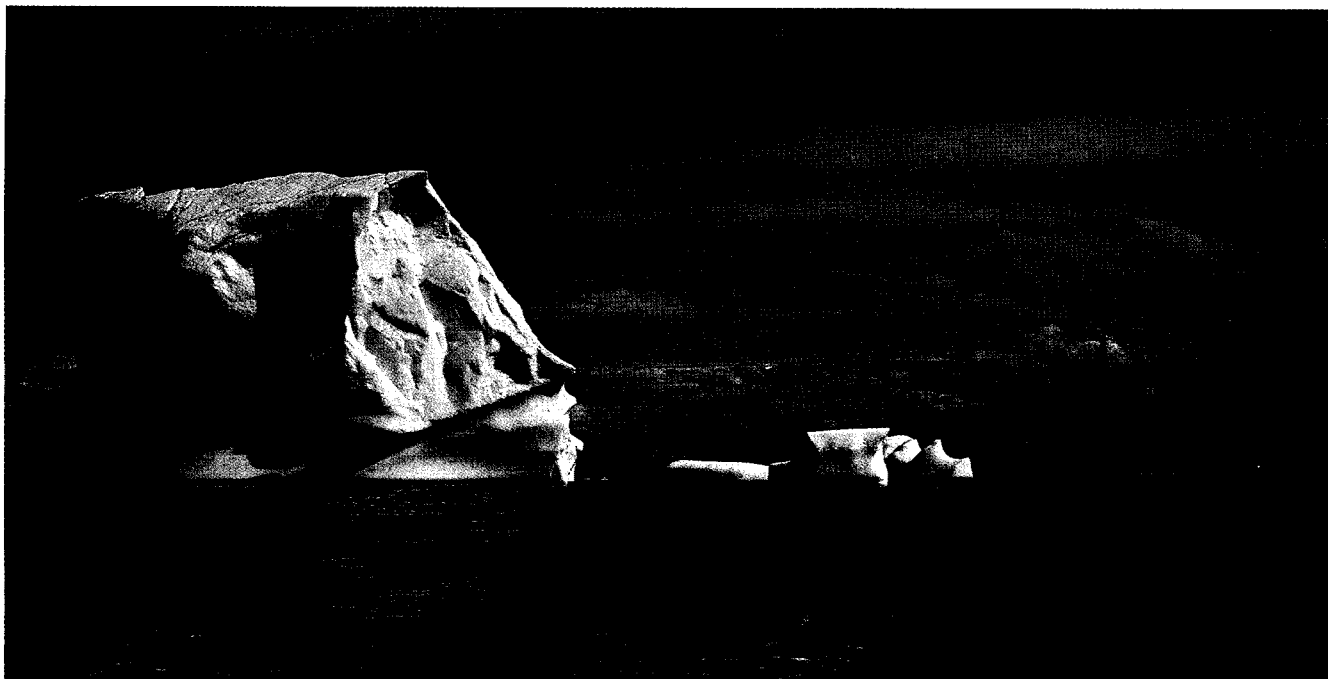
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NEWFOUNDLAND

Tuning the Rig

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WE ARE MOORED in a ghost town. Near overgrown cottages skeletal dories lie beached upside down in the tidal mud. At 1900 hours we tied up at the only dock still standing, alongside a ruined factory across from the ruined village on the fjord's east side. The moon had not yet risen. Under the cove's steep wall the shadows were already deep. Vines emerged from the factory's rusting boilers. Frost-heaved slabs of concrete were stained a deep red; casks and machinery lay scattered among wind-curved sheets of corrugated roof. It could have been Conrad's Inner Station in *Heart of Darkness*, which was used to store ivory. In fact it had been used to butcher whales.

Throughout Newfoundland's history most of the island's population lived in villages like this one. There were at one time 1,300 of them, scattered along 6,000 miles of coastline. Few ever had 500 inhabitants. Most were inaccessible by land. Some did not have a cash economy until after the

Second World War. In a typical "outport" everything sprawled helter-skelter. There were few if any streets, no town councils, and no town planning. Still, a certain uniformity was evident: nearly every house had frontage on the water, with a dock, a boat, and a platform called a flake, for drying cod.

What were people's lives like? Quiet—a slow routine of fishing locally for cod and bringing it in to be salted. Of visits in homemade dories to neighboring towns. Of austere worship in raw pews; communal laundry days and country dances; tea and turnips, and tobacco smoked in clay pipes called dudeens; songs and stories told by lamplight late into the night in low-roofed parlors. A saying of the old Newfoundlanders went, "Land is a place to cure fish." Their lives were closely tuned to the pitch of the sea and the rhythms of the natural world. But early in this century those rhythms were broken, and the balance they had provided was lost.

With the coming of the First World War the sons of this Nursery for Seamen played a large role in the Allied merchant navy. When the war was over, many who had served chose not to return to the outports and moved on for good to Newfoundland's capital city, St. John's, or New York, or Boston. Gravely depopulated, heavily dependent on one resource—cod—Newfoundland was devastated by the

collapse of world markets for that resource after 1929. Over the following two decades problems that had been chronic grew acute. In the outports, it was said, there was nothing but rum and poverty. Finally, in 1949, Newfoundlanders voted to renounce their dominion status in the British Commonwealth, and Newfoundland became a Canadian province.

From then on the decline of the outports was hastened by official policy. The new province's economic future was seen to lie with pulp and paper mills, and massive hydroelectric projects. And it was argued that outports were no longer socially viable. Such small settlements, it seemed, were not money-making propositions; the harmony with nature—the almost unthinking maintenance of biological and social equilibrium that had sustained these communities for centuries—was gone. A vigorous "coastal resettlement program" drained the population into more accessible towns. Under pressure, people moved. What they found, in many cases, was a better livelihood. What they left behind was a way of life, and villages like the one where we were now moored: Williamsport.

It is not the sort of place you come upon by chance. Eight weeks before, I had sailed from Boston in an eighty-year-old square-rigged ship, the *Regina Maris*, bound for Greenland and the polar ice to study humpback whales.

GENERATING BRAIN POWER

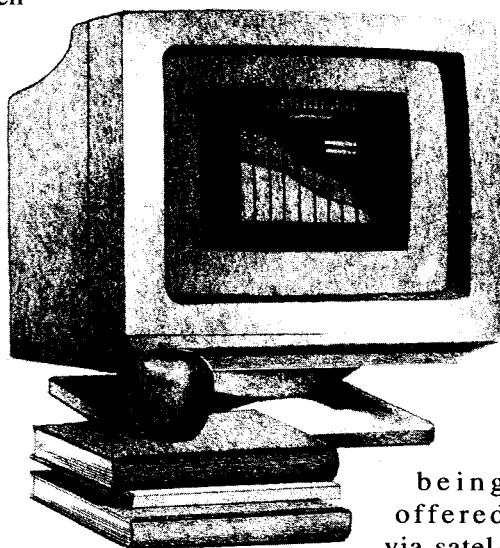
By Bob Bergland

The sound of school bells brings back memories of my classroom days in rural Minnesota. But students in today's countryside are hearing a high-tech ring to that sound, as the latest information technologies help teachers and students keep up with our changing, more competitive world.

In sparsely populated areas, like Indian-
homa, Oklahoma, school systems often have difficulty offering a range of advanced courses. So Cotton Electric Co-op stepped in with an innovative solution, donating a satellite dish to beam down telecourses in German, physics, and other subjects produced at Oklahoma State University. Indian-
homa's high school graduates now are better prepared to compete in college and in life.

advanced computer courses through the satellite hook-up provided by Consumers Power.

Teacher training and enrichment programs, as well as adult education courses, are also



being offered via satellite with help

from local electric co-ops.

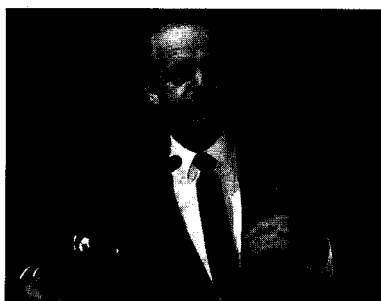
It's natural that rural electric cooperatives would provide such leadership. They know firsthand how to broaden home-

town opportunity by pulling local resources together and forging partnerships with other private and public institutions. They're also supporting congressional rural development initiatives that would include funding for "star schools" programs using fiberoptics, satellites, and other modern technologies to help thousands of students receive an education previously unavailable to them.

Striving for excellence in education is nothing new for rural schools. But with a boost from rural electric systems, cooperating with local, state and federal organizations, students all over the country will walk into college classes and onto job sites with the necessary science, math, and language skills.

By helping young people prepare for today's competitive society, rural electric cooperatives are generating more than electricity... they're strengthening the nation's educational foundation.

Leadership in education like this is being duplicated in small towns and rural communities across the country. Thanks to Morrow Electric Cooperative in Ohio, a student at Fredericktown High School, who dreams of a career in aerospace engineering, can take a calculus class once out of reach. Youngsters in Eddyville, Oregon, have access to



Bob Bergland is Executive Vice President of the National Rural Electric Cooperative Association.



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Harpoon heads on the whaling-station dock in Williamsport

The expedition's goal was to track the animals that the *Regina's* sister ships had once slaughtered to their northernmost range. Now the arctic summer was turning. Having run a census of the Greenland whales, we sought to compare that whole population with the larger one off Newfoundland. In the course of this work we had learned of Williamsport. As the mares' tails that foretell approaching squalls appeared off the coast, we sailed through a "key-hole" in the thousand-foot-high granite cliffs, and proceeded up a fjord that grew progressively more still and dreamlike as the sound of the sea trailed off. Two miles in, the anchor was let fall in Fourché Harbour.

Whaling operations in Newfoundland employed a method dating back to the early part of the century. Whales were killed at sea by "catcher" boats. In some operations boats were then dispatched to bring in the floating carcasses; otherwise the hunting boat would collect the catch itself and labor up the inlet to its station, trailing several giant corpses. Small cargo ships docked at the pier to onload the processed meat, bone meal (for fertilizer), oil, and baleen.

From 1905 to 1915 about a dozen companies vied for the five kinds of large whales that swam in Newfoundland waters: blue, fin, humpback, sei, and sperm. Catches soon declined. By the 1930s few onshore stations re-

mained, and from then on the average yearly take was small—around 200 whales for the entire coastline. Whale populations started to recover.

Then, in 1939, a whaling station was opened in Williamsport by the Olsen Whaling and Sealing Company, with equipment transferred from an older station in the south. A few years later, two other, nearby stations were reopened, and the changing nature of life on land began to disrupt, perhaps irreversibly, life in the sea. Whaling without restrictions, the three operations took 3,000 whales from 1947 to 1951 alone. The Williamsport station was shut down in 1951, only to be used again by a Japanese firm in 1967. This time so many fins were slaughtered in so short a span that they were almost wiped out in local waters. In 1972 the station closed for good, and today, less than two decades later, it already evokes the timelessness of ruins. A fisherman whom I spoke with fifty miles up the coast said, "It was all different then. With the jigging and the whaling, there was work, and some to spare, for fifty families. A hustle and a bustle. Surely."

THE SQUALL has come and gone. The sun is breaking through, and the woods along the shoreline glisten. I and several other members of the crew lower away in small boats and set out exploring.

Across the fjord from the factory stand the remnants of Williamsport proper: a ring of twenty or thirty cottages in various stages of collapse around Fourché Harbour. The horseshoe-shaped inlet is shallow and clear. Fragments of timber and oarlocks, fishnets and floats, are embedded in its floor. At either end of the horseshoe, like stained molars in an otherwise toothless jaw, stand two houses in relatively good repair. The prim gray cottage with chintz curtains and a flat roof is the home of an aged couple, two of the village's three current residents, Wesley and Effie Randall; the one-room shack belongs to a solitary fisherman named Pierce Caravan. Maybe they remained in their homes as others moved away, or maybe they appropriated the houses closest to the harbor's mouth. Like many outports, Williamsport had been a village without streets: where would they lead? But something was required to get from house to house, so residents built "the road," a boardwalk on stilts that ran behind each house along the shore. We set off on it gingerly toward the back of the harbor, watching for dropped planks and rotten pilings, peering through caved-in roofs and buckled door frames from which wild brush sprouts like coral from a wreck.

Beyond an arched footbridge next to a cemetery overgrown with wild radish stands a frame church with its doors and windows gone. Its signboard lies face down, ingested by raspberry thickets. Inside the building weather-beaten pews encircle a central platform. Sunlight enters through the stovepipe's ceramic collar. There are no religious artifacts or other signs of worship. Nothing at all to turn over, poke at, stumble on. The building was so austere, so modest, when in use that now, abandoned, it scarcely seems changed. Sumacs reach in through the windows. An alder pokes up through the floor.

Outside again, the trace of a path leads up and up, keeping close to a stream that can be heard but not seen. The recent rain is gurgling through the mulch and steaming off the foliage. The path rises on, past blooming fireweed and asters, speckled alders, black and yellow birches, rowan, scarlet mushrooms, shimmering ferns. High up it ends, suddenly emerging at a pool between two waterfalls.



As I watch my shipmates leap into the fresh, clear water, after fifteen hundred miles of frigid seas, and as I smell the sweet rot all around me, after two months without vegetation higher than my kneecap, I am overcome by gratitude, and led to wonder why.

On almost any day of this expedition I have felt every kind of emotion with a purity and intensity I rarely knew before. It makes me realize that in a city, if the environment is neutral—not too noisy, too filthy, too intrusive—then I think things are all right. But in fact a truce with our senses is not the same as an alliance. Though we may think so, we are not habituated to sensory deprivations. The absence of constant nourishment through the senses divorces us from nature's rhythms, traps us in ourselves and in each other, makes us brittle and subjective, thins the blood. In the city sensuality is overemphasized and yet, paradoxically, is confined to certain types of relationships and situations. Here it is a ceaseless, wordless dialogue with patterns larger than oneself, a constant rinsing. Intimate, im-

personal, this dialogue-sensation feeds the habit of perception, breeds deep feeling and clear thought.

Of course, the point is not really "here" or "there" at all but taking it with you, bringing it home. Is that still possible in a city, in our time? I don't know. All I know is that now, this moment, in this spot, what I can see is radiant, and fresh, and strange. I approach it as if beamed down on another planet called, perhaps, the Past.

IN THE EVENING I walk down the pier, stepping over missing planks, to the factory. The sky is still twilit, but the fjord is swaddled in gloom. Pale wads of mist are forming on the water. A full moon, rising, is not quite visible behind the rock walls on the near side of the fjord, but the far side is burnished by a colorless glow, half dusk, half moonlight. When we docked, a few hours back, the ship's cook jumped ashore to tie up the forward spring line. Then without a word he lowered his head and just kept walking, like an animal tracking a

scent. I haven't seen him since. But now, as I turn a corner, he calls to me softly, from above.

The cook and the engineer are sitting on the corrugated roof of the factory, beside a hole through which blubber was dropped into "cookers." They aren't talking. There is something like an aura or magnetic charge around them. When the cook does speak at last, he can't look at me. His voice is like damp black cloth. "I have the strangest feeling," he says. "Something in there keeps pulling me in."

In the past two months we have come to know so many humpback whales. In the bleakest seas they have rubbed against our hull in greeting. They have "bubble fed" beside the ship, corralling fish with "bubble nets" spun out of exhaled air. They have invented games, such as surfacing alternately on our port and starboard sides. During one such game, when I was climbing down a shroud, I turned to find that a full-grown whale had "spyhopped"—that is, risen al-

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most vertically to get a better view of me.

To observe a forty-ton mass erupting through the slush ice, waterfalls trailing along its flanks and whirlpools eddying off its flippers, is to experience the engine of the natural world as frighteningly Other. But to have that engine turn and peer into your eyes, with a benign and speculative gaze, is to feel that perhaps the Otherness is not so other after all, to appreciate that you and it are looking at each other.

Humpbacks are known in scientific terms as an indicator species. If their numbers fall too low—if they as a species are in trouble—it is because the less sophisticated, less visible members of the food chain that supports them are in trouble too; the whole biological community is out of balance. In this sense the whales, at the top of their food chain, are like canaries in a coal mine; if they die out—if the ocean, overfished and polluted, can't support these animals—it will ultimately not support us either. The Olsen Whaling and Sealing Company paid little heed to such considerations, to the larger patterns beyond itself. The company, in the end, became its own victim.

How can I convey what it feels like to sit on the feeder ramp—gouged, crosshatched, and scarified by flensing knives? Below, the concrete holds red puddles. Rust? Dissolved brick? How can I not imagine they are something else? Not see the great sad carcasses winched up, their blood cascading down the chute between my feet, the weed-choked courtyard walled in by blocks of flesh?

The moon is now high overhead. Shimmering down the main shed's outer wall, I pry off a board with my marlin spike and step inside. Moonlight washes in through cracks in the roof and walls, falls here on a ten-foot-high cylinder, there on a circular valve, a trough. A large chute comes into view, angling toward a lidded metal pot below. The blubber would have passed this way. The skeleton, too, hacked into pieces by giant saws, and then boiled to extract oil. The oil ran from the cookers into various tanks, depending on the purity. Here and there on the floor I can see scraps of baleen, and discarded sacks stenciled

WHALE MEAL
NOT FOR HUMAN CONSUMPTION



JUDITH PERKINS

Aloft on the Regina Maris

The factory is utterly quiet; even my breathing seems muffled by the dust, the heavy air. For a long time I feel nothing—and then I am intensely lonely. The space where I am standing gathers to itself, in sorrow, all that we have done to empty the world of our companions in it. It is said that humpback songs are “ghostly.” Well, this place is filled with ghosts: gigantic, innocent, unaccusing. Still, I imagine them saying, “Now that you’ve killed us, spoiled the water, denuded the land, now, now you decide it’s time to listen to our songs, to find out what they mean.” I have listened to those songs a dozen times. I want to hear one now. Or any sound—a snake, a bat, even mosquitoes. But there is nothing.

WILLIAMSPORT LIES well eastern. The ship is bound for the southeast, tacking westward. A red sun is skewered on the bowsprit. The sky is pink, and finny, and the seas so dark they are almost black, except for the foam that slides along each crest like runny frosting.

On deck there is music: fiddle, concertina, recorders, and guitar, playing outport jigs and reels. Viewed from above, on the mainmast shroud, it seems suddenly so small, this little circle, making music, clustered on a floating stage, with the ocean darkening all

around and the land behind dissolving into memory. Most of the faces of the people below are in shadow, individual features fading, chins and hair and noses lit by the red glimmer like heads around a hearth.

Looking down on this scene from my position aloft, thinking of Williamsport, I recall a recent incident on board when a fracture was discovered in the giant bottle screw into which a backstay fastens. This was serious, for the bottle screw, one might say, is an indicator machine; the counterbalanced tension of the stays is what holds up the mast, like guy wires on a radio tower. The ship’s engineer constructed a steel splint, which was then bolted on to the bottle screw. It would hold for a while. But it altered the tension on the backstay, and made it necessary to adjust the opposing stays (four on each side) by backing off or tightening other bottle screws with a monkey wrench that weighed ten pounds. This took a long time.

Only when we had finished with the mizzen did I realize that we had just begun—that the mizzenmast, in turn, was connected by other stays to the mainmast, the mainmast to the foremast, the foremast to the jib boom, and so on. A single web distributed the tension over every inch of rig; no part, even the stoutest mast, stood on its own; the whole thing held together thanks to counterbalanced stress, so that a change in any single part affected every other.

As the boatswain eyeballed the fore topmast and hung by his hands from a stay to test its give, I asked how he’d learned to do what he had just done.

“This? It’s just”—he paused—“routine.” He tightened a bottle screw one quarter turn.

“What do you call it?”

“Tuning the rig.”

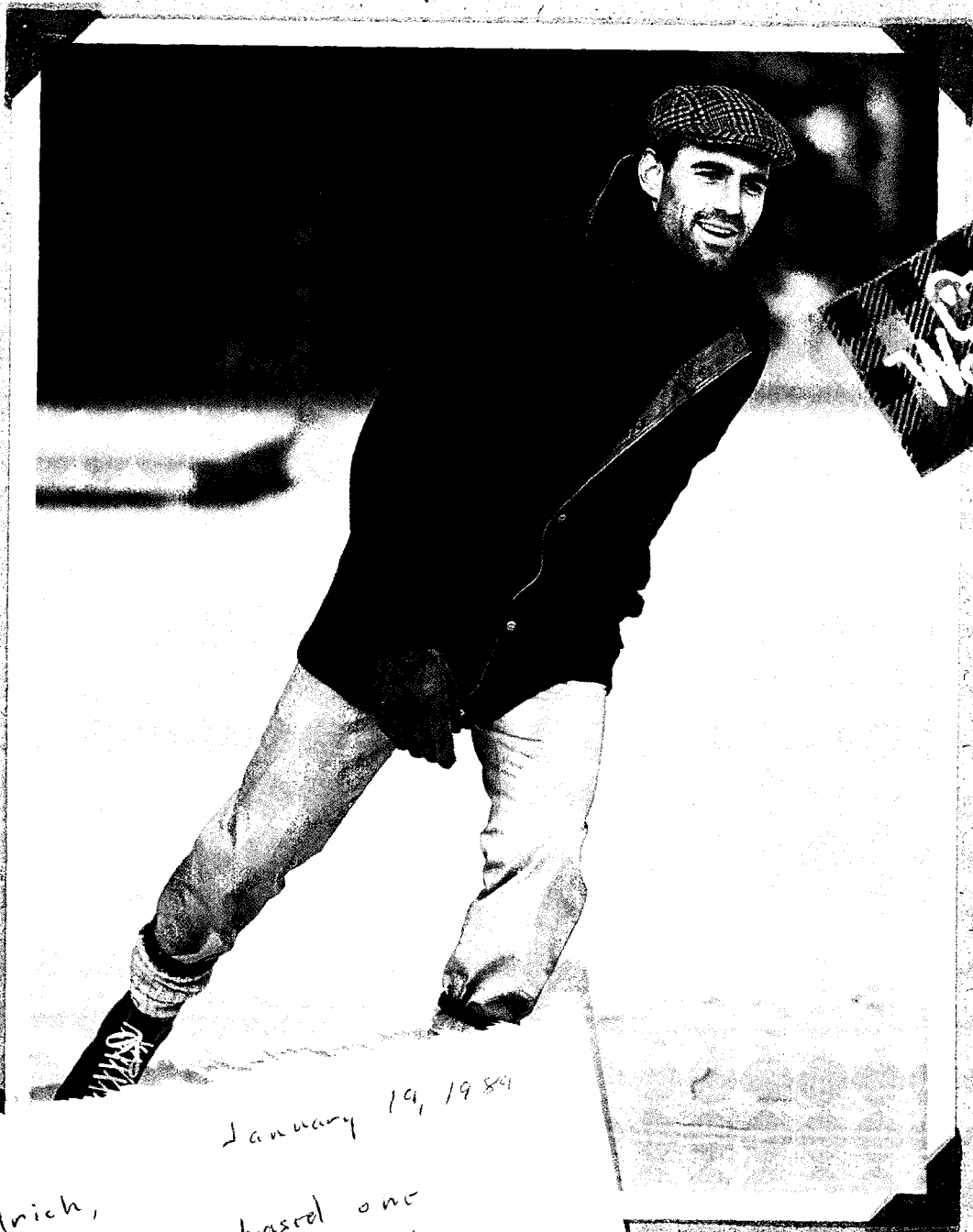
Now, as I step on deck to join in my shipmates’ music, the *Regina* indeed seems like one great instrument, with her fretted shrouds, the chord of her sails, her belaying pins like tuning pegs, her hull the ocean’s sounding board, her lignum vitae and mahogany, her oak and teak, her taut proud beauty and her lines that hum like harp strings in the wind—an instrument that we, together, play.

—Harvey Oxenhorn

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Thinsulate

Diet has hardly any effect on your cholesterol level; the drugs that can lower it often have serious or fatal side effects; and there is no evidence at all that lowering your cholesterol level will lengthen your life



BY THOMAS J. MOORE

ONE MORNING IN EARLY OCTOBER OF 1987 THE U.S. health authorities announced that 25 percent of the adult population had a dangerous condition requiring medical treatment. Since there were no symptoms, it would be necessary to screen the entire population to identify those in danger. More than half of those screened would be dispatched to their physicians for medical tests and evaluation. Then for one out of four adults treatment would begin. The first step would be a strict diet under

medical supervision. If within three months the dieting had not achieved specified results that could be verified by laboratory tests, a more severe diet would be imposed. The final step for many patients would be powerful drugs to be taken for the rest of their lives.

Considering that this was expected to be one of the most important medical interventions in the nation's history, the formal announcement was deceptively low-key. It was to be called the National Cholesterol Education Program. And while *cholesterol* was surely a household

This article is drawn from Thomas J. Moore's new book, Heart Failure, to be published this month by Random House, Inc.

One would suppose that before a program costing billions was launched, it had been conclusively demonstrated that lowering cholesterol levels would save lives. No such evidence existed.

word, the official sponsor was less familiar: the National Heart, Lung, and Blood Institute, a major division of the federal government's National Institutes of Health. Although the heart institute's main job is to coordinate and finance medical research, this departure into medical intervention was not unprecedented. At first glance the program's objective sounded positively innocuous: "To reduce the prevalence of elevated blood cholesterol in the United States and thereby contribute to reducing coronary heart disease morbidity and mortality." But the National Cholesterol Education Program was a medical landmark in several ways.

It was the culmination of an extraordinary and sustained medical-research effort targeting the nation's biggest killer—coronary heart disease. One experiment had taken forty years and was still in progress. Another involved examining 361,622 middle-aged men. A famous experiment by two Nobel Prize winners had penetrated the innermost recesses of the human cell to identify a single gene with a dramatic effect on cholesterol levels. Researchers had studied the arteries of rabbits, given high-fat diets to monkeys, and fed egg yolks to college students. It would be hard to find another medical issue that had been explored with such vigor, by so many researchers, and at such great expense. Just two important experiments took twelve years, cost more than \$300 million, and consumed 60 percent of the heart institute's clinical-research budget.

There were serious risks to consider. Not since the introduction of oral contraceptives would so many people be exposed to powerful new prescription drugs over decades. Among the most elusive hazards of any drug are damaging or even deadly side effects that are recognized only after the drug has been administered to thousands of people for years. Nor is dietary therapy quite as simple as it sounds. So complex are the interactions among food compounds, and so varied are the behavior and the chemistry of individuals, that dietary intervention has proved to be one of the most complicated of all medical treatments, subject to unexpected difficulties and disappointing results.

Finally, the National Cholesterol Education Program represented a major change in strategy in the prevention of coronary heart disease. Previous efforts, led mainly by the American Heart Association, had relied on advice and

persuasion. Now the federal government was calling on the authority of physicians to prescribe a medically supervised regimen of treatment. This was not just friendly advice from the family doctor to cut down on cholesterol. It was, in the words of the treatment guidelines, a program of "behavior modification" backed by laboratory tests

to ensure adherence and measure results. People still might abandon drugs that made them sick—and some cholesterol-lowering drugs were famous for doing so—or refuse to eat foods they didn't like. But now they would be violating explicit doctor's orders.

One would expect a government program of such importance to have survived rigorous examination and review before it moved into high gear. One would suppose that such a far-reaching intervention into the lives of millions of people had been approved by the White House and scrutinized by Congress. In fact the heart institute launched this project on its own authority, consulting panels of hand-picked specialists. One would suppose that before millions of people were put on a medically supervised diet, the diet would have been tested to demonstrate that it was safe and effective. No such tests were conducted. One would suppose that the nation's clinical laboratories could measure cholesterol accurately enough to identify those who needed treatment. In fact laboratory performance was so poor that millions with average or low blood-cholesterol levels would inevitably be misled into believing that their levels were dangerously high. One would suppose that before a program involving billions of dollars in doctors' bills, laboratory tests, and medication was launched, the costs and benefits would have been carefully weighed. In fact officials refused even to guess at the total costs and had no plan to measure the benefits. And one would suppose that it had been conclusively demonstrated that lowering blood-cholesterol levels would save lives. No such evidence existed.

An Alarming Discovery

THE STORY OF CHOLESTEROL BEGAN IN 1951, when the Pentagon dispatched a team of pathologists to the combat zone of the Korean War on a grisly mission to learn from the bodies of the dead. The principal assignment of the team, led by Major William F. Enos and Lieutenant Colonel Robert H. Holmes, was to examine wound ballistics, and in three years the team performed autopsies on 2,000 dead soldiers. As a group, battle casualties differ greatly from the subjects a pathologist normally examines, who were mostly old and very sick when they died. The soldiers on whom Enos and Holmes performed autopsies

had been vigorous young men. So when the pathologists began to notice signs of coronary heart disease, it was surprising, because practically nobody under thirty-five dies of coronary heart disease, and these war dead were, on the average, twenty-two. So the pathologists launched a systematic study of the hearts of soldiers killed in battle. In 300 consecutive cases they dissected the single most vulnerable component of the heart—the network of tiny coronary arteries that nourish the heart muscle with blood.

These small arteries are considerably more sophisticated than hollow tubes. Their inside surface is a thin layer of very smooth, almost slick cells. The surface needs to be smooth because when the platelets and proteins in the blood encounter a break or irregularity, they lay down a deposit of fibrous material. Such a fibrous deposit on the skin is the familiar scab, and would be undesirable in an artery unless there were a leak or other damage that needed repair. The next major layer in the artery consists of smooth muscle, which can expand and contract, like other muscles in the body. One of the mechanisms by which the heart muscle can increase its blood supply is by dilating the coronary arteries, thus increasing the flow.

Enos and Holmes expected to find mostly slick interior surfaces surrounded by healthy smooth muscle. Instead they found stringy, streaky yellow deposits of fat and fiber in 35 percent of the casualties. These particular deposits had posed no immediate threat. But they meant that degeneration of the arteries was well under way more than twenty years before these men would have been likely to experience heart attacks.

In another 42 percent of the casualties the coronary arteries were in even worse shape. In this group the fatty streaks had already grown into full-fledged lesions, structures that somewhat resemble warts. Such lesions are usually capped by hard, fibrous plaque. Inside is a mass of debris that can include cholesterol compounds, dead tissue, and calcium. Some lesions are soft, like pimples; others are rock hard. Once these lesions are established they slowly increase in size. Fortunately for human life expectancy, they can block about 75 percent of the diameter of an artery without seriously inhibiting the blood flow. Also, some areas of the heart muscle are nourished by more than one branch of the arterial network; if one artery becomes

blocked, the tissue can get blood through another. One out of ten soldiers already had lesions severe enough to reduce or block entirely the flow of blood in at least one artery.

Thus 77 percent of the Korean War casualties examined showed gross evidence of coronary heart disease. This was a shock to the medical community, for it meant that the process underlying coronary heart disease began much earlier than anyone had thought. Here were fully developed lesions, some entirely obstructing arteries, in twenty-two-year-olds. Furthermore, practically all the casualties showed at least some signs of coronary heart disease.

Arterial lesions would remain at the center of medical interest in coronary heart disease for decades to come. Cholesterol-lowering diets would aim to slow their growth; bypass surgery would attempt to route blood around them; in angioplasty a tiny balloon would squeeze the lesions open. In 1953, however, researchers faced a more immediate problem. Without examining the coronary arteries directly, how were doctors going to tell who was in danger? The answer to that question was just then beginning to take shape eighteen miles west of Boston, in an industrial town called Framingham.

A Town Under Examination

IF DOCTORS COULD PINPOINT WHAT WAS DIFFERENT about people with coronary heart disease, maybe they could learn to save them. Tracing the development of such a universal peril would require the careful surveillance of thousands of people for years on end. One might as well examine the population of an entire town—and that is exactly the task that a team of Boston University Medical School physicians undertook, in Framingham, Massachusetts. It was among the first large-scale projects of the heart institute, which paid for and directed the study. The researchers, led by Thomas R. Dawber, hoped to recruit most of the adult residents of Framingham and study them for the rest of their lives. The project, which continues today, began in 1948.

The researchers set up shop in the mostly blue-collar community of 28,000, primarily ethnic Irish and Italians, and recruited two out of every three healthy men and women from age thirty to sixty-two. Every two years the



participants would undergo physical examinations, fill out detailed questionnaires about their living habits and diet, and be tested with exercise treadmills and electrocardiographs.

Probably in no other city in the United States have the population's health, weight, and dietary, exercise, and living habits been measured so meticulously for so many years. A substantial fraction of everything that medical science knows today about the epidemiology of coronary heart disease has been learned from the residents of Framingham. But the public-health policies that have unfolded in the forty years since the study began have been heavily influenced by the strengths—and weaknesses—of the particular kind of knowledge that emerges from a study like this one.

Epidemiology is the study of the occurrence of illness. Learning who is afflicted and who is spared can help provide the tools to prevent disease, even when no cure exists and the disease process remains a mystery. Epidemiology tells nothing about whether a particular person will get a particular disease, but it may identify groups in a population which are particularly vulnerable.

However, a statistical approach can provide false clues as well as valid ones. For example, heart patients were advised to avoid coffee after researchers found a positive association between coffee and coronary heart disease. The association was misleading. The culprit proved to be cigarette smoking; smokers were simply more likely to drink coffee.

The Framingham experimenters built a detailed portrait of coronary heart disease from a sample of 5,127 adults, of whom 404 died of coronary heart disease over twenty-four years. When epidemiological studies are complete, the tidy mathematical charts and tables tend to conceal the crude and approximate character of the entire exercise. The Framingham study was no exception. Just deciding which residents had coronary heart disease involved significant amounts of medical guesswork. The typical participant failed to appear for about one out of five physical examinations. It has been hard to keep some laboratory tests uniform over so many years. While the Framingham study represents sound epidemiological research, its limitations need to be kept carefully in mind: it followed a small sample of adults selected from a single New England town nearly forty years ago.

What emerged from the Framingham study was a series of risk factors for coronary heart disease which public-service advertisements, newspaper articles, books, and television talk shows have made familiar to most Americans. The two biggest risk factors could not be changed. Men were much more likely to develop heart disease than women, especially before age fifty-five. Premenopausal women were practically immune; only eleven of 1,600 such women developed coronary heart disease. Also, risk increased rapidly with age. For example, half of all deaths from coronary heart disease in the United

States occur in the five percent of the population who are over seventy-four years old. But other important risk factors looked more amenable to intervention. One, high blood pressure, could be reduced directly with medication. It also appeared possible to modify smoking, obesity, and a sedentary life-style.

Among the characteristics associated with a greater likelihood of coronary heart disease, one drew special attention. People with the disease often have higher levels of an important organic chemical called cholesterol.

Cholesterol, as most of us know, exists in high concentrations in egg yolks, in fatty beef, pork, and poultry, and in shellfish. However, most of the cholesterol in the bloodstream is incorporated into compounds that are manufactured by the body for a wide variety of essential purposes. Cholesterol is so important that every cell in the human body can manufacture it. The membranes of cells are constructed primarily of lipids, which play a vital role in regulating what may enter and exit the cell. The body's own chemical factory, the liver, is the largest producer and consumer of cholesterol compounds. However, the heaviest concentrations of cholesterol compounds are found in the brain. Cholesterol compounds are even essential to the manufacture of sex hormones. It is no coincidence that when all the chemicals required to form a living creature are assembled in a hen's egg, cholesterol is a principal component.

For many years a laboratory test has been used to measure the level of cholesterol in blood serum. (Blood serum is the fluid that remains after cells and clotting agents have been removed from blood.) Since the Framingham study ranks among the most frequently cited demonstrations that high blood-cholesterol levels are linked with coronary heart disease, it is revealing to examine the evidence directly. Here is an example, calculated from the Framingham population at the twenty-year point:

Average Serum-Cholesterol Level	Occurrence of Coronary Heart Disease
Low (less than 200 mg/deciliter)	10%
Average (200–239)	12%
High (240 and above)	18%

(Average of 10 measurements over 20 years)

As blood-cholesterol levels rise, the upward trend in heart disease is unmistakable, a relationship demonstrated in other epidemiological studies. However, the same table shows extensive heart disease among those with low or average cholesterol levels.

The data showed a modest relationship between cholesterol levels and heart disease. But could the researchers identify groups in the Framingham sample for whom the relationship was even stronger and more dramatic? The association was strongest, they found, in young and middle-aged men. If the analysis was limited to this group, those with high blood-cholesterol levels were

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three or four times more likely than those with low levels to die suddenly or have a heart attack or chest pains. Given that coronary heart disease is the nation's single most common cause of death, this was a relationship of indisputable importance. It was to fuel scientific interest for decades to come.

Cholesterol, however, is far from being a simple and universal explanation for what causes coronary heart disease. For example, high blood-cholesterol levels generally do not increase the risk of coronary heart disease among women. "For women there was no relationship except in the middle decade of life [ages forty to fifty]," Thomas Dawber, the first study director, wrote. The link between high blood-cholesterol levels and increased risk of coronary heart disease in both men and women weakened at about age fifty and then disappeared entirely. Thus, among the elderly, the group in whom most deaths from coronary heart disease occur, high cholesterol levels did not appear to be a risk factor.

Another fact about cholesterol emerged from Framingham, although it was never published in a scientific journal. Buried deep in a typewritten report almost two feet thick, issued in 1970, is a study titled "Diet and the Regulation of Serum Cholesterol." The Framingham researchers had for years assumed that they knew exactly why some people had higher blood-cholesterol levels than others: their diet. To measure this link they selected 912 men and women and compared the cholesterol in their diets with the cholesterol levels in their blood. To their surprise there was no relationship. Next, the researchers studied the intake of saturated fats and overall calories. None had an effect. They considered the possibility that some other factor—such as differences in physical activity—masked the effects of diet. No other factor made any difference. "There is, in short, no suggestion of any relation between diet and the subsequent development of CHD [coronary heart disease] in the study group," the researchers concluded in the report. It was not lost on the Framingham team that people were already being advised to diet to lower their cholesterol levels, and that more-elaborate campaigns were on the drawing board. They concluded:

There is a considerable range of serum cholesterol levels within the Framingham Study Group. Something explains this inter-individual variation, but it is not diet (as measured here). Clearly if there is to be an attempt to manipulate serum cholesterol level in a general population it would be desirable to know what these powerful but unspecified forces are.

Among young and middle-aged men the risk of coronary heart disease did appear to rise steadily as levels of cholesterol in the blood increased. The data also showed that those with a combination of risk factors were especially prone to develop coronary heart disease, and were even more vulnerable than would be expected when the individual risk factors were added together. It was thus

that the Framingham researchers and their colleagues at the heart institute emerged with mathematically elegant risk-factor equations for cholesterol, high blood pressure, and smoking.

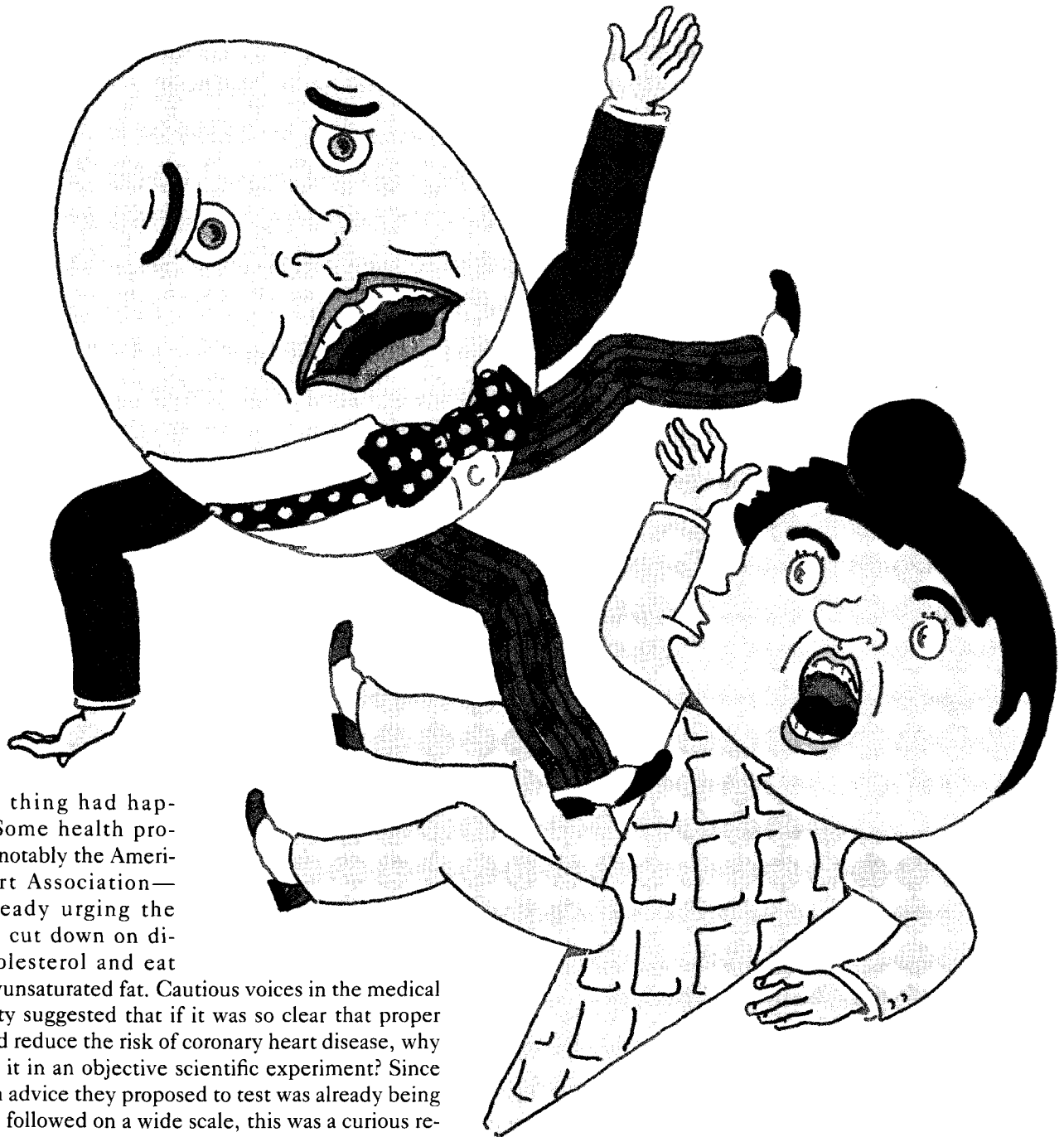
Ways of Attack

JUST AS THE FRAMINGHAM TEAM WAS REFINING ITS list of risk factors for coronary heart disease, in the late 1960s, another group of researchers was investigating ways to lower blood-cholesterol levels with diet. The troubling finding that diet and blood-cholesterol levels did not appear related was mostly ignored in the search for a specific dietary approach that might reduce the incidence of coronary heart disease.

From the previous decade's research three competing theories emerged about how this goal might be achieved. The simplest-sounding approach was to reduce dietary cholesterol. But even crude experiments involving feeding quantities of egg yolks to volunteers demonstrated that it took huge changes in the consumption of dietary cholesterol to affect the cholesterol level in the bloodstream. The body manufactures, circulates, and uses such great quantities of cholesterol compounds that small additions or subtractions from dietary sources appeared to be insignificant. By the mid-1960s many researchers had dismissed dietary cholesterol. Investigators also discovered that polyunsaturated fats—such as those found in corn and many other vegetable oils—reduced blood-cholesterol levels, although the mechanism by which this was achieved was not clear. One approach to lowering blood-cholesterol levels through diet involved substituting polyunsaturated fats for the saturated fats found in meat and poultry. Test diets used high ratios of vegetable to animal fats. The third strategy was to reduce total calories. Not only are the overweight more vulnerable to heart attacks independent of their cholesterol levels, but the body converts any carbohydrates not immediately needed into saturated fats. This approach was based on the theory that the human body is a biochemical factory of such power and flexibility that the specific content of diet is not important within a normal range of foods.

Most of these early diet experiments shared several severe limitations. They were usually conducted in an institutionalized population for whom every aspect of diet and behavior could be completely controlled. This made experimentation easier but raised the question of whether the results would apply in the population at large. And many were limited by having a small number of participants. Diet studies quoted to this day as authoritative had as few as five subjects. If any enduring truth has emerged about human beings and diet, it is that everyone is remarkably different, and studies that don't involve dozens if not hundreds of participants are of extremely limited value.

While these possibilities were being investigated, a



peculiar thing had happened. Some health promoters—notably the American Heart Association—were already urging the public to cut down on dietary cholesterol and eat more polyunsaturated fat. Cautious voices in the medical community suggested that if it was so clear that proper diet would reduce the risk of coronary heart disease, why not prove it in an objective scientific experiment? Since the health advice they proposed to test was already being given and followed on a wide scale, this was a curious reversal of the horse and cart. It was a pattern that would occur again and again in the cholesterol saga.

Thus a team led by Ivan Frantz, of the University of Minnesota, and funded by the heart institute, began preliminary experiments for a major heart-diet trial, calling it the Heart-Diet Pilot. To make it credible and realistic, the investigators wanted to conduct it among a large group of adults living normal lives. Could they attract enough cooperative volunteers? They wanted to prove what many experts only suspected: that an acceptable and safe diet existed that would not only lower blood-cholesterol levels but also reduce the risk of heart attack. Also—and this was the hardest part—they had to learn how to monitor the food intake of thousands of adults who were conducting their lives as usual.

The team attacked each of the complicated problems. It proved possible to attract enough suitable volunteers. By creating special food warehouses where the participants could shop using specially coded cards, the experimenters were able to monitor food. Finally, they succeeded in lowering blood-cholesterol levels in a pilot test seven months long. The investigators employed all three dietary approaches, but in contrast to modern diet advice, they emphasized a diet unusually high in polyunsaturated fats. At the end of that period the blood-cholesterol levels were 10.5 percent

lower than at the start. While the team had proved that blood-cholesterol levels could be lowered in a free-living population, the reductions were only about half those achieved in smaller and more limited experiments.

The Framingham study and the Heart-Diet Pilot were among the most important evidence on the table in 1971, when the heart institute convened the Task Force on Arteriosclerosis to plan some of the boldest and most expensive medical experiments ever conducted.

THE TASK FORCE SET AN AGENDA FOR RESEARCH ON coronary heart disease that would guide the nation for fifteen years. Landmark policy decisions in medicine are made under ground rules and by procedures found almost nowhere else in our society; research medicine is governed by interlocking committees of elite physicians.

On the first rung of the medical hierarchy are the various primary-care physicians: general practitioners, family-practice specialists, and internists. These physicians must deal with such an enormous variety of human ailments that much of the time they can only apply hundreds upon hundreds of rules learned mostly by rote. Primary-care physicians will refer the cases that cannot be dealt with by that approach to the physicians on the next rung, the specialists. Specialists are likely to know and understand a much greater fraction of the scientific literature in their field. Their therapies may depart more frequently from what they were taught.

At the top of the hierarchy are the academic faculty of medical schools and teaching hospitals. Their power reaches far beyond the fact that they train other physicians and that the most complicated cases may be referred to them. They decide when new therapies should be applied on a broad scale and when others should be abandoned. More important, this medical elite advises the Food and Drug Administration on drug safety, approves or rejects multimillion-dollar research grants, and appears on expert panels at important medical meetings. Within a specialty the club is small enough to be on a first-name basis.

Although it is a federal government agency, the heart institute interlocks tightly with this medical elite. Early in their research careers promising academic physicians often serve tours of duty as fellows at the heart institute. Later, an especially successful academic-research physician may become the director of the institute or one of its branches. Between times the academic elite will sit on many official committees and co-author influential articles with institute officials. The Task Force on Arteriosclerosis that met during 1971 was an important gathering of this elite.

These doctors and research scientists had not won admittance to the most exclusive club in medicine by being timid thinkers, and when they sat down to plot a scientific

assault on coronary heart disease, their vision was suitably bold. In the Framingham study more than twenty years of research had gone into identifying risk factors. These results, by and large, fit in with other epidemiological evidence. Now the task force was going for the payoff: a scientific demonstration that enough was understood about the causes of coronary heart disease to prevent it. The task force remained undaunted as its various committees began the much tougher job of converting its overall mandate into detailed plans for elaborate and expensive clinical trials.

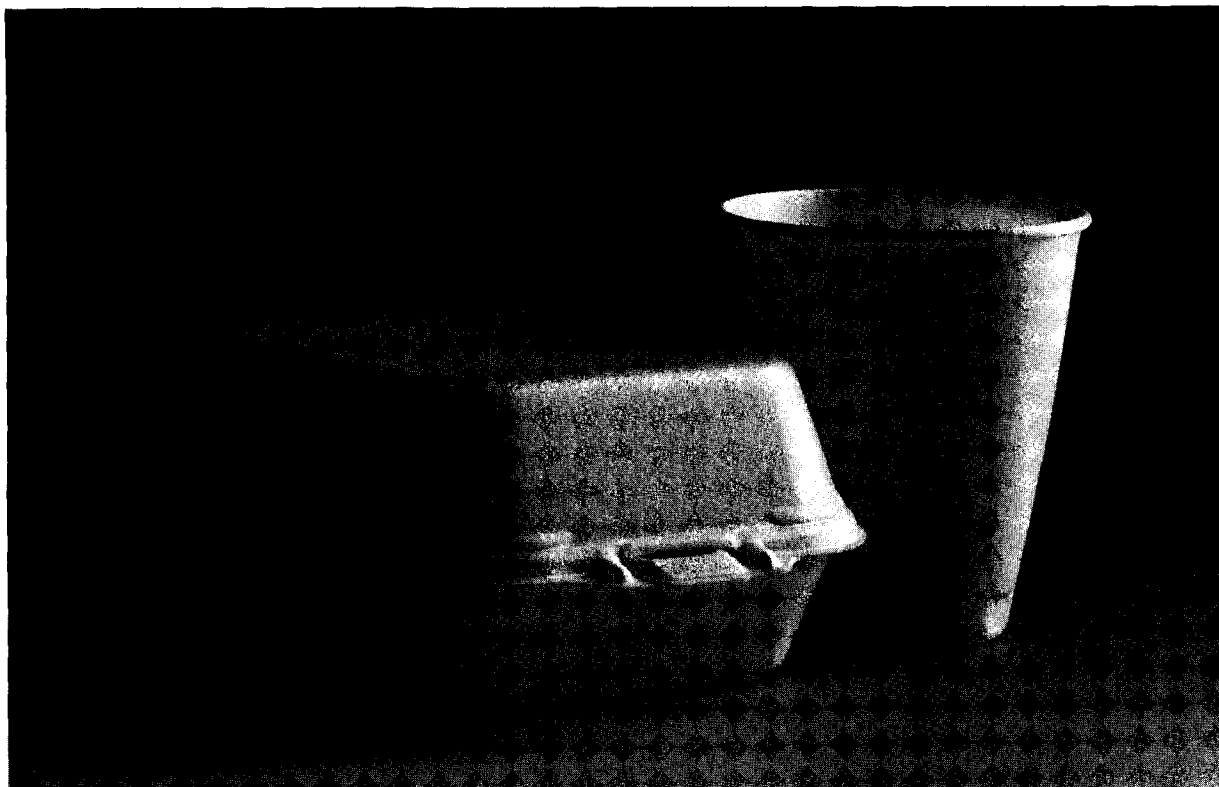
One task-force decision remains controversial to this day. Despite the elaborate Heart-Diet Pilot, the task force rejected a major trial to determine whether diet alone would reduce the risk of heart attacks, agreeing only to make diet one part of a larger trial. Task-force members concluded that the chances were too great that the trial would fail, citing two reasons. First, the cholesterol reductions expected were so small that a trial with as many as 100,000 participants, costing up to \$1 billion, would be required to produce a reduction in coronary heart disease large enough to measure. Also, the task force was not convinced that dietary intake could be monitored accurately enough.

Even those who harbored concerns about the ambiguity and weakness of some of the evidence could not help being reassured by the commitment to confirming the cholesterol hypothesis through the classic scientific method. The ink was barely dry on the report of the task force before the heart institute had endorsed it and launched two of the most important medical experiments in history.

Cholesterol on Trial

THE MEDICAL INVESTIGATORS WHO INTENDED to prove that they could prevent coronary heart disease faced a formidable task. Clinical trials are among the most elaborate, expensive, and time-consuming forms of medical research, and these experiments were going to be especially difficult. The more complicated was called the Multiple Risk Factor Intervention Trial, or MR. FIT, and it still ranks as one of the largest and most demanding medical experiments ever performed on human beings. It took more than ten years, involved twenty-eight medical centers across the nation, employed more than 250 researchers, and cost \$115 million.

Before the trial could begin, the investigators had to weigh the need for knowledge about a major threat to health against the risk that trial participants might be harmed or killed. In the most objective and convincing trials people with similar medical characteristics are randomly assigned to either a treatment group or a control group. The treatment is presumed to be beneficial, or there would be no point in the trial. But the stronger the



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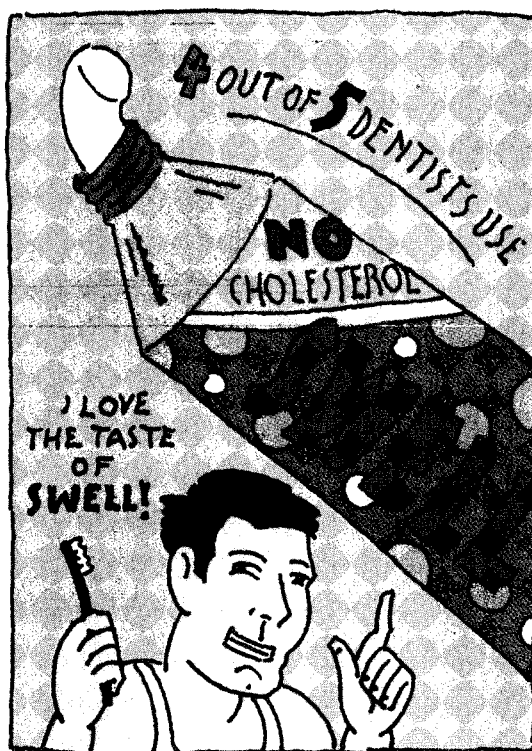


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belief that the treatment is beneficial, the more ethically troubling it becomes to deny that treatment to the control group. Would it be proper to identify thousands of men at especially high risk for coronary heart disease, assign them to a control group, and then wait to see if the predicted number died, just for purposes of accurate comparison? To resolve the problem the investigators settled on a compromise. Members of the control group would be informed that they had an above-average risk of coronary heart disease, and the results of annual physical examinations done for the sake of the experiment would be provided to their personal physicians. That solved the ethical problem, but now the experimenters worried that the untreated subjects were not a true control group, because their doctors might try to modify one or more of their risk factors. And wasn't a routine physical examination itself a form of intervention? Nevertheless, the investigators elected to continue on the assumption that this would have little or no effect over the long run.

The average American was not the prime target of MR. FIT. Using the risk-factor equations developed from the Framingham study, the researchers were going to select for their experimental subjects those who were at highest risk from specific risk factors that they believed they understood and could control. So they excluded the elderly, who experience the most heart attacks, and young and middle-aged women, who experience few. To get enough candidates at high risk from multiple factors required examining 361,662 men aged thirty-five to fifty-seven. The resultant group of 12,866 men was not exactly ready to run the Boston Marathon. Two thirds smoked cigarettes. Their typical diet included more than twice the recommended amount of cholesterol. Two out of three had developed high blood pressure early in life. Sixty percent were obese. Plainly, the MR. FIT trial had met an important goal: there was plenty of risk to modify. As the trial began, the men were randomly divided into two similar groups. One group was referred to the "usual care" of their physicians. The other, the "special-intervention" group, became the target of a sophisticated and sustained campaign to modify fundamental living habits.

Not only did the MR. FIT investigators have to achieve significant measurable behavior changes on a broad scale, but they had to sustain these gains over seven



years. The initial strategy would be built around ten weekly group-therapy-style sessions during which the interventionists would seek to motivate their subjects to make far-reaching changes in their daily lives.

The first challenge was to lower blood-cholesterol levels through changes in diet. While the heart institute task force was unwilling to risk a pure diet trial, it did retain diet as a key component in a simultaneous assault on three risk factors. Although the relationship between diet and coronary heart disease is tenuous at best, a reasonable theory holds that dietary intervention still might work, even though the body sets a blood-cholesterol level and any cell can manufacture an additional supply. A rough analogy would be diet and

obesity. It is quite possible for two people to follow exactly the same diet with one being fat and the other thin. In this instance food intake and body weight do not seem to be related. However, if both reduce their food consumption by 20 percent, both will lose weight. Such a theory might apply to diet and blood cholesterol, even though the relationship is even more indirect. The problem is that meaningful changes in diet are extremely hard to achieve and sustain.

In the group sessions the participants were showered with information about specific foods, taught to shop for groceries, told how to order restaurant meals, even shown how to revise their favorite recipes. The participants were asked to record everything they ate and sign contracts pledging to abstain from various practices. In the best tradition of behavioral psychology, they were lavishly praised for each goal they attained. As measured by changes in eating habits, the behavior-modification protocol proved a huge success. The special-intervention group cut their cholesterol intake by 42 percent, their saturated-fat consumption by 28 percent, and their total calories by 21 percent. Because nutritionists still debated which approach was the key to dietary intervention—reducing dietary cholesterol, saturated fats, or simply calories overall—the investigators touched all three bases. The interventionists had persuaded the participants to drastically alter their eating habits and sustain the alteration over years, a record that any health spa or diet clinic could envy. Sadly, the enormous life-style changes made by the participants had little effect on the level of cholesterol in their blood. The study began with the most modest of goals for blood-cholesterol levels—the 10 percent

reduction achieved in the Heart-Diet Pilot. The results were a disappointment: by one measurement method blood cholesterol dropped only 5 percent, by another 6.7 percent.

Legend has it that smoking is so addictive that under early Persian tyrants even the threat of amputation of the hand did not prevent tobacco use. The interventionists' approach was considerably more subtle but more persistent, and involved an awesome variety of techniques. Smokers received stern health lectures from physicians and heard moving personal success stories from ex-smokers. They were offered monetary rewards—the money saved by abstaining—and were taught all kinds of tricks, such as keeping cigarettes in inaccessible places, hiding ashtrays, and using relaxation techniques. At the end of four years nearly three quarters of the light smokers had quit, but only a third of those with a two-pack-a-day habit. In all, almost half the smokers quit entirely, an impressive result that substantially exceeded the study's target.

High blood pressure was the last and simplest risk factor to attack. Except in the cases of a few of the most obese men, treatment was a matter of careful periodic measurement of blood pressure and adjustment of medication as required. Eighty-seven percent of the men were treated successfully enough to push their blood pressure below the threshold that defines moderate hypertension. Two thirds reached their specific blood-pressure goal in the normal range.

The MR. FIT trial had reached an important milestone. It had demonstrated that the behavior of a large group of men without symptoms of ill health could be successfully modified, and the modifications sustained over a seven-year period. The question still to be answered was how many lives had been saved.

The death watch in the MR. FIT trial was as meticulously planned as the rest of the experiment. In the special-intervention group the researchers expected to reduce the number of deaths from coronary heart disease by more than 25 percent, even after allowing for dropouts and others who wouldn't fully adhere to the program. A panel of three cardiologists not otherwise associated with the trial evaluated each death to establish whether it was attributable to heart disease or another cause. Then, on the official record date of February 28, 1982, more than nine years after the experiment began, the investigators started to tally the results.

The trial failed completely. No significant difference in the overall number of deaths could be found between the two groups. In fact, slightly more deaths occurred among the special-intervention group. That small difference was not statistically significant—it was probably the result of chance. Con-

sidering only deaths from coronary heart disease did not change the picture. The difference between the two groups, of some 6,400 men each, was only nine deaths, also probably the result of chance.

The major surprise came in the usual-care group, the high-risk patients left to their own devices. The number of deaths from coronary heart disease was 40 percent lower than expected. Even though the usual-care group reported only minimal changes in their diet, their blood-cholesterol levels declined nearly as much as the special-intervention group's, leaving only a two percent difference between the groups. The usual-care group did not take part in a special anti-smoking program, but 29 percent quit on their own. Although fewer of these men were treated for high blood pressure—and treatment was not pursued as aggressively as it was in the special-intervention group—the typical blood pressure in the usual-care group was only four percent higher.

Among the problems the investigators faced was one that would emerge as important in other clinical trials: the results were clouded because the treatment had caused harm as well as benefit, particularly among those treated for high blood pressure in the special-intervention group. The medication not only lowered blood pressure but also raised blood cholesterol by seven percent, helping to defeat one of the other goals of the trial. The hypertension medication might also have contributed to the deaths of some of the special-intervention participants. The numbers were not large enough to be conclusive; the experimenters described the indications as "ambiguous but disquieting."

The failure of MR. FIT triggered a wide range of comment and criticism in the medical community, but attracted little attention in the general press. Some treatment enthusiasts tried to explain away the failure with what might be called the Physicians' Conspiracy Alibi. Under this theory hundreds of ordinary doctors who happened to be taking care of patients in the control group secretly worked to undermine MR. FIT by providing special treatment that they did not give their other patients. Such malicious and unethical behavior by doctors scattered across the country seems very unlikely.

The usual-care group proved much healthier than expected, but this was probably part of the broad decline in coronary heart disease that could be observed throughout

Sadly, the drastic changes that the MR. FIT trial participants made in their eating habits for years had little effect on the level of cholesterol in their blood.

the 1970s in all age groups across the country. A second possibility was that the Framingham study had substantially overstated the dangers of multiple risks.

But one fact was clear. A ten-year, \$115 million research program had demonstrated that the investigators did not know nearly as much about preventing coronary heart disease as they thought they did. The health advice given to millions of Americans over decades had been tested in a large and elaborate clinical trial, and had produced no measurable benefits.

More Attempts to Lower Cholesterol

THE FAILURE OF MR. FIT DID NOT END THE SCIENTIFIC drive to demonstrate that coronary heart disease could be prevented. From the start many researchers had believed that the long-sought evidence would emerge not from new behavior-modification efforts but from the classic medical intervention of drugs. However, three important requirements had to be met. First, it had to be shown to be possible to lower blood-cholesterol levels significantly for long enough to measure the benefits, something no one had done. Second, the cholesterol reductions, once achieved, had to be shown to reduce the incidence of coronary heart disease. The investigators were searching for a risk factor that could be modified, not just a more accurate method of identifying those most likely to die. Third, the treatment used to lower blood-cholesterol levels could not harm more people than it helped. The clearest and simplest proof of that would be showing that lowering blood-cholesterol levels prolongs life. Not only is a lower total mortality the main object but it is an important check against the possibility that intervention creates unanticipated health hazards—reducing heart attacks but causing other, unexpected problems. These were the challenges for the heart institute as its investigators drew up plans for its second large effort, known officially as the Coronary Primary Prevention Trial, or CPPT. It was launched at about the same time as MR. FIT but would take longer to complete.

One of the institute's earlier steps in the assault on coronary heart disease had been to establish twelve special cholesterol-research laboratories, called lipid-research clinics. The importance of the subject and the prospect of a steady flow of federal grants had helped ensure that some of the clinics had been sited at universities with big names in coronary medicine, including Baylor, Stanford, Johns Hopkins, and the University of Washington in Seattle.

A critical early decision was to choose a specific drug to lower blood-cholesterol levels. From among the substances available in the early 1970s the investigators selected a drug called cholestyramine, which is usually marketed under the name Questran. It reduces blood cholesterol by interfering with normal digestion. The liver manufac-

tures a substance called bile acid, which circulates through the intestine, where it helps break down animal fats into a more usable form. When the drug is present in the intestine, it binds to the bile acid, removing it from the normal pattern of circulation. Because cholestyramine is indigestible, some of the bile acid is excreted, prompting the liver to manufacture an additional supply. Cholesterol is one of the major raw materials needed for making bile acid, and the liver obtains much of the extra cholesterol by absorbing it from the bloodstream.

The use of this particular drug gave the experiment a biochemical purity that was entirely absent from MR. FIT's broad assault on statistical risk factors. Cholestyramine had a measurable effect on the specific cholesterol compound that was the investigators' chief suspect. Cholesterol generally circulates in the bloodstream not in pure form but rather as an essential ingredient in a wide range of useful substances. Blood plasma is mostly water, and fats are not soluble in water. Cholesterol, with the help of proteins, combines with fats into molecules called lipoproteins. The molecules not only circulate through the bloodstream but also can pass through the delicate cell membranes, into cells throughout the body.

Two of the most important cholesterol compounds manufactured by the human body are low-density lipoproteins, or LDL, and high-density lipoproteins, or HDL. These two key compounds have been popularized as "bad cholesterol" and "good cholesterol." The exact role of HDL is not yet clear, but it appears to assist in the removal of cholesterol from cells and the blood, and is believed to be uniformly beneficial.

Investigators would attack with cholestyramine what they believed to be the culprit in coronary heart disease—low-density lipoproteins. About 75 percent of all the cholesterol in the bloodstream is contained in LDL molecules. The principal effect of cholestyramine is to lower concentrations of LDL in the bloodstream. The investigators expected that the drug would reduce blood cholesterol by at least 25 percent, and LDL by even more.

Using a drug as the means of intervention also made it possible to improve the objectivity of the trial, by making it double-blind. Half the subjects would receive the real drug, and the other half an inert substance. Neither subjects nor experimenters would know who was getting the real drug and who the placebo.

The investigators intended to achieve a specific result, which they announced and published in advance. Including the modest effect of a prescribed cholesterol-lowering diet (which the investigators expected to reduce cholesterol levels by three or four percent), they expected to reduce blood-cholesterol levels in the treatment group by an average of 28 percent. It would take at least three years before the lower cholesterol levels had any effect on coronary heart disease. After seven years coronary heart disease would have been reduced by 50 percent in the treatment group. They insisted on a rigorous statisti-

cal test to make it 99 percent certain that the results were not a statistical fluke. "Since the time, magnitude, and costs of this study make it unlikely that it could ever be repeated, it was essential to be sure that any observed benefit of total cholesterol lowering was a real one," the investigators explained.

The process of locating 3,810 subjects for the trial took three full years and required examining 480,000 middle-aged men. The researchers looked for men with extremely high levels of blood cholesterol—higher than those of 95 percent of the population. They accepted smokers in approximately their proportion in the general population, but otherwise excluded those with complicating risk factors, such as high blood pressure and diabetes. Participation was limited to men, because in this age group (thirty-five to fifty-nine) their risk of heart attack is greater. The investigators were limiting the participants to an unusual and especially vulnerable group, which greatly increased the odds of success in an expensive and demanding experiment. And yet if the experiment succeeded, questions would still remain about whether the results would have significance for the typical adult.

Even before the study began, the investigators knew they had one substantial problem, but they believed that they had dealt with it. The "harmless placebo," which was to be taken twice daily, consisted of eight tablespoons of a mixture of finely ground sand, sugar, and food coloring. This indigestible mixture produced moderate to severe gastrointestinal side effects in one out of four participants. And that was the placebo. The drug was worse. In the understated words of the study designers, cholestyramine is an "unpleasant drug"—so unpleasant that the design allowed for the possibility that up to 35 percent of the participants might drop out. However, the investigators vastly underestimated how difficult it would be to induce people to keep taking the drug at the prescribed dosage. It was made up of millions of tiny chemically activated resin beads in a bulk filler. In the first year of the study 68 percent of those taking it reported moderate to severe side effects, the most common being constipation, gas, heartburn, and bloating.

The side effects might not have been so important had it not been for one unfortunate result. The investigators did not even come close to achieving the desired reduction in blood cholesterol. By the seventh year the cholesterol levels in the treatment group were only 6.7 percent lower than those in the control group. The trial's design had called for achieving a difference more than four times as large. Two things accounted for the vast shortfall in cholesterol reduction. Although the drug appeared to absorb bile acid effectively, the liver compensated to some extent by stepping up the manufacture of cholesterol. Second, most of the participants refused to take the six packets each day that were required to achieve the full effect of the drug. So even if the hypothesis that lowering blood-cholesterol levels would prevent heart attacks was

absolutely correct, the researchers had no prospect of proving it. They could not lower blood-cholesterol levels by more than a marginal amount, even under the most carefully planned clinical conditions and focusing on an ideal target population.

So the second of the important, lengthy, expensive (\$142 million), and painstaking trials succumbed to the same problem as the first: there was just not enough difference between the treatment group and the control group to prove or disprove the hypothesis.

Some would conclude that the experimenters were wrong about the mechanisms of coronary heart disease. Perhaps the high cholesterol levels were a condition frequently associated with the disease but not a cause. If the trials had proved anything, it was that the body has a tremendously effective mechanism for maintaining blood-cholesterol levels.

IT WOULD BE TEMPTING TO BLAME THE PROBLEMS OF the CPPT on cholestyramine had not another trial, using a different drug, suffered a similar fate. During the same period that U.S. researchers were trying to demonstrate that coronary heart disease can be prevented, an equally ambitious effort, sponsored by the World Health Organization, was under way in three European countries. The target was blood cholesterol. The drug was called clofibrate, and the objective was to be 99 percent certain of achieving a 30 percent reduction in coronary heart disease. The prospects for bringing about this conclusive outcome dimmed quickly as it became clear that clofibrate lowered blood-cholesterol levels by only nine percent, about half the treatment effect expected. Nevertheless, the investigators, led by the British cardiologist Michael F. Oliver, achieved one promising result. While there was no difference in the number of fatal heart attacks in the group taking clofibrate, significantly fewer nonfatal attacks occurred. But when doctors scrutinized the crucial question in all such experiments—Did the treatment group live longer?—the results were deeply disturbing. When the trial was halted, at the end of five years, the investigators reported excess deaths in the treatment group. In the group taking clofibrate 162 deaths had occurred, compared with 127 in a similar control group with equally high initial cholesterol levels. The investigators spent years poring over the records trying to discover why the deaths had occurred. They documented one clear problem: "beyond a reasonable doubt" clofibrate caused gallstones. (Three deaths had occurred during surgery to remove gallstones.) This hazardous side effect had not been reported in testing prior to the approval and marketing of the drug. Only through the careful surveillance of thousands of trial participants over two years was the side effect first documented. The remaining unexplained mortality was due to a variety of ailments, especially cancer, that affected the liver and the

digestive system. In an assessment of the difficulties of preventing heart disease, the British epidemiologist Geoffrey Rose explained, "In mass prevention each individual has usually only a small expectation of benefit, and this small benefit can easily be outweighed by a small risk. This happened in the World Health Organization clofibrate trial, where a cholesterol-lowering drug seems to have killed more than it saved, even though the fatal complication rate was only about 1 per 1000 per year."

Among attempts to prevent coronary heart disease, clofibrate was hardly unique in causing more harm than good. The heart institute had gained a vast amount of clinical experience from its own Coronary Drug Project, which tested four drugs on the population at highest risk for heart attacks—men who had already experienced one. One drug was estrogen, the female sex hormone, to be given to men on the theory that it might account for the dramatically lower heart-attack rates among premenopausal women. Barely a year into the trial the investigators stopped giving large doses of estrogen when the early results showed convincingly that this treatment caused heart attacks rather than preventing them. Three years later they discontinued giving moderate doses of estrogen after no evidence had emerged of efficacy "from the key end point of total mortality." While estrogen apparently did not prevent further heart attacks, it frequently caused breast enlargement, atrophy of the testicles, and impotence or reduced sex drive.

The results were little more promising with the thyroid hormone dextrothyroxine, which lowers cholesterol levels. This drug was abandoned early, when the safety-monitoring committee decided that higher mortality in the treatment group was approaching the threshold of statistical significance, and that the rate of death seemed to increase steadily the longer the drug was given.

Just two drugs, clofibrate (the heart institute conducted its own clofibrate trial) and megadoses of the vitamin niacin, survived the full five years of trials. Niacin looked promising in the category of nonfatal heart attacks, but it had side effects. Ninety-two percent of those taking it reported uncomfortable flushing of the skin, 49 percent itching, and 20 percent other rashes. Much smaller but statistically significant numbers reported experiencing gout, problems of the digestive system, and severe scal-

ing and excessive darkening of the skin. At the end of the five-year trials neither clofibrate nor niacin had affected total mortality. With the exception of estrogen, all the drugs in the trial were cholesterol-lowering agents.

These were the kinds of recent results that the CPPT investigators had on hand as they began to assess the results of their own trial. This is what they found, after administering cholestyramine daily to the treatment group for an average of 7.4 years:

	Treatment Group (1,906 men)	Placebo Group (1,900 men)
Deaths from all causes	68	71
Deaths from		
coronary heart disease	30	38
Nonfatal heart attacks	130	158

A simple reading of the table suggests that the effects of treatment, if there were any, were small. The results look strongest if approached from the perspective of relative risk. While the number of deaths from all causes was about the same for the two groups, we still could say that the risk of nonfatal heart attack was reduced by 20 percent. A second and perhaps more useful approach is to look at absolute or actual risk. From this perspective we would say that more than seven years of treatment had reduced the chances of experiencing a heart attack from eight percent to seven percent.

The trial results are so meager as to raise the question of whether the cholesterol-lowering treatment had any beneficial effect. Could not these small differences be a chance result of the fact that slightly healthier patients happened to be assigned to the control group? The probability that experimental results occur entirely by chance is calculated according to a formula based on the number of participants and the size of the difference between the two groups. Two standards are widely accepted in medical research. Under the stricter standard the effect of treatment is pronounced enough that one can be 99 percent certain that the differences were not a result of chance—the standard proposed for CPPT. Under the less strict standard one is 95 percent certain. Ordinarily results that do not meet this 95 percent confidence test are simply discarded as "not significant."

Under either standard the CPPT was a failure; the small favorable trend in the treatment group was not statistically significant. If the fatal and nonfatal heart attacks were combined, the results got tantalizingly close to the more lenient 95 percent test, but still fell short. When a trial fails to meet its announced statistical standard, this is the end of the matter, and it is time to re-evaluate

The panel that designed the National Cholesterol Education Program knew that it would result in the treatment of millions of people who had been wrongly classified.

the theory or find another approach to treatment.

However, in what was a dark hour in the heart institute's long tradition of scientific excellence, events took a different turn. Over ten years the heart institute had spent 60 percent of its \$494 million clinical-trials budget on just two efforts: MR. FIT and the CPPT. Both were bold and reasonable experiments conceived by some of the brightest minds in medical research. By the usual standards both had failed.

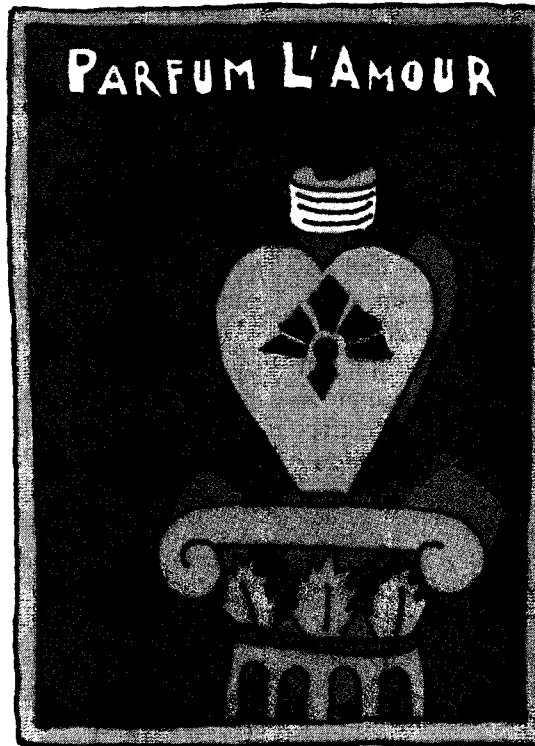
Instead of admitting the failure, the heart institute researchers went shopping for a statistical test that their results might pass. Deep in the fine print of statistical theory the experimenters found a more lenient standard, called a "one-tailed" test of significance, which their results would barely meet. By either a standard of common sense or the more formal rules of statistical theory, the trial results were at best marginal and at worst nonexistent. It was unlikely that even these minimal results could ever be duplicated in the real world of clinical practice. Nevertheless, the heart institute proclaimed a resounding success, perhaps borrowing the lawyers' aphorism "When the evidence is weak, argue more loudly."

The *Journal of the American Medical Association* devoted its January, 1984, issue to cholesterol, and the CPPT was featured in the two lead articles. The results, the heart-institute authors said, "leave little doubt of the benefit of cholestyramine therapy." In a conclusion that could have been an advertisement for the drug, the study report concluded, "The trial's implications . . . could and should be extended to other age groups and women, and . . . to others with more modest elevations of cholesterol levels. The benefits that could be expected from cholestyramine treatment are considerable." This laid the groundwork for what would become one of the largest medical interventions in the nation's history.

The Campaign Is Launched

LIKE SOME PONDEROUS PREHISTORIC BEAST, THE National Cholesterol Education Program slowly surfaced from the bureaucratic swamps of the National Heart, Lung, and Blood Institute.

The program that ultimately came into being was described in detail in 1982, in a major American Heart Association policy statement. By 1983 the heart institute was conducting detailed and expensive surveys of attitudes



toward cholesterol, among physicians and members of the public, which it would use as the basis for a public-relations campaign. In late 1984 an NIH-sponsored Consensus Development Conference provided the scientific mandate the heart institute had sought, and in 1985 the National Cholesterol Education Program was officially launched. In 1986 it was unveiled to the medical community, in 1987 to the public.

It is a program of vast scope and consequences. James I. Cleeman, the program coordinator, has said that at least a quarter of all adults would be referred to their physicians for treatment to lower their cholesterol levels. "It's a mammoth intervention and it deserves to be a mammoth intervention."

As heart-institute officials began to plan their anti-cholesterol campaign, it quickly became apparent that the primary obstacle was not public ignorance or apathy but the skepticism of the nation's physicians. Owing mainly to the highly visible and unopposed news-media campaigns of the American Heart Association, the public had long ago been sensitized to the alleged hazards of dietary cholesterol. In 1983, according to a poll by the heart institute, two thirds of the public believed that a high-fat diet had a "large effect" on coronary heart disease, and nearly as many believed that dietary cholesterol was an equally important hazard.

A majority of the nation's physicians disagreed, the institute learned in a related poll. While nine out of ten thought that smoking had a large health effect, only 28 percent were equally concerned about the dangers of saturated fat, and only 39 percent about elevated blood-cholesterol levels. Therefore the nation's doctors became the first target of the heart institute. The slogan that emerged later—"Ask your doctor about cholesterol"—would even exploit the discovery that the public had been easier to convince of the dangers of cholesterol than were the doctors who dealt with heart disease every day.

The public was largely unaware that a lively debate was being waged, mostly out of view, in the nation's medical journals and at scientific meetings, and that expert opinion was never unanimous. In 1980, for example, Thomas N. James, then the president of the American Heart Association, had dissented on diet. "I wish to express some personal reservations about our non-exceptional advice, which is taken by the public as meaning everyone should be deeply concerned about their dietary

cholesterol," James said in a broad critique of the emphasis on diet which he delivered at the association's annual scientific meeting. His views were reported in the American Heart Association's medical journal, *Circulation*, with the disclaimer that they were not necessarily those of the association.

The heart institute's director, Claude Lenfant, encountered stiff resistance from his advisory council, a group of influential physicians who advise on and approve research. Lenfant never asked this group to approve the National Cholesterol Education Program, because it was a "public-education program" and not medical research. But he did have to ask it to approve money for a research project to learn how most effectively to influence physicians' views on cholesterol, especially on the diet question.

Lenfant made his request at a meeting in May of 1986. In a group generally notable for the calm of its proceedings a heated debate ensued, and in a rare rebellion the advisory council refused to endorse the director's proposal. "Physicians just aren't convinced [about cholesterol]," said Eliot Corday, a prominent Los Angeles cardiologist and the council member who led the dissent.

Nonetheless, the heart institute's machinery cranked relentlessly on. Six months later the proposal was resubmitted and rejected again, after additional debate. But after another year, at a moment when the mixture of council members in attendance was slightly different, a scaled-down research program was narrowly approved.

One reason for the initially low public profile of the National Cholesterol Education Program is that its primary goal was to influence the physician community. Starting in late 1987 every practicing doctor was sent a report summarizing the institute's "consensus" conclusions on cholesterol. A much more elaborate information kit on treatment went to 200,000 of the nation's physicians, including cardiologists, doctors in primary care, general practitioners, internists, and family-practice physicians.

The heart institute's eager partners in promoting cholesterol consciousness are the drug companies, which are understandably excited that the government is creating their largest new market in decades. Most drugs face the inherent limitation that they soon solve the medical need that led someone to take them, and are no longer necessary. Drugs that are needed indefinitely—such as tranquilizers and medications for hypertension and angina—are the biggest money-makers. Thus the medical journals were soon packed with advertisements for cholesterol-lowering drugs, and salesmen were knocking on the doors of physicians' offices from coast to coast. And what could be more effective in beating down physicians' sales resistance and skepticism than the explicit endorsement of government experts?

Late last year the heart institute acquired powerful new allies. The American Medical Association, a major drug manufacturer, and two huge food companies joined

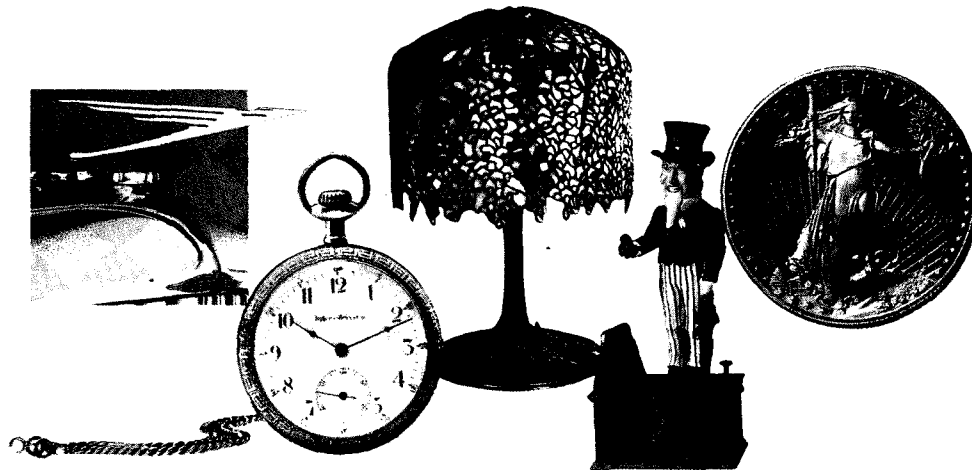
forces to "declare war on cholesterol." The public-relations and advertising campaign began to reach the public early this year and included national and local television programs, special magazine features, cereal-box advertisements, books, videocassettes, brochures, discount coupons, and posters.

Although the effort appeared to be a public-service campaign, it was in reality a business scheme to sell products and physicians' services. In announcing the advertising campaign to the nation's physicians, the AMA said, "The AMA's *Campaign Against Cholesterol* will use national and local television to tell the public about the risks of high blood cholesterol and *the availability of cholesterol testing through your office*" (emphasis added). The drug company Merck Sharp & Dohme was already aggressively marketing its new cholesterol-lowering drug, lovastatin, under the name Mevacor. Kellogg was preparing to launch a new oat-bran cereal (Common Sense), and American Home Products to promote a cooking-oil spray (Pam) that, like almost every other vegetable oil, contains no cholesterol. The National Cholesterol Education Program guidelines suggested that treatment should not begin without a complete physical, a patient history, and a laboratory workup. This was not lost on the AMA, which noted pointedly that screening programs had found that "as many as 25% of the participants either have no personal physician, or have not seen their doctor within the past five years." Thus a program that may have begun in sincere but misguided zeal for the public good became intertwined with greed. The world was learning how much money could be made scaring people about cholesterol. And the mainstream organizations were being joined by thousands of less responsible profiteers offering miracle treatments, wonder diets, instant cholesterol checkups, and a variety of other services and goods whose effects were nonexistent, unproved, or hazardous.

The avalanche of information reaching the public uniformly emphasized the dangers of cholesterol, but questions continued to be raised in the nation's medical journals. From 1985, when the program was officially created, to the present, critical articles or editorials have appeared in the *Annals of Internal Medicine*, *The Mayo Clinic Proceedings*, the *Journal of the American Medical Association*, *Medical Care*, *Circulation*, and the *Journal of the American College of Cardiology*.

Although this stream of medical literature made a balanced selection of information available to the inquiring medical researcher, the opponents of the cholesterol campaign nonetheless seemed to lose ground. They conducted research or wrote an analysis, and that was the end of it. They had no money to sponsor national conferences. Their articles weren't mailed, along with press releases, to medical writers in the popular press. Unlike the heart institute, they had no means by which to build an enormous alliance of parties with a financial or other stake in the cholesterol question. They didn't conduct

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opinion polls and fund research grants to teach them how to select target audiences and influence them most effectively. Indeed, given that the heart institute is the principal source of funds for research in the field, it is a tribute to the independence of the medical community that so many physicians spoke out, and that the journals presented their views so prominently and in such detail. But the dissenters have lacked the money, skills, and perhaps even the interest to take their case to the public.

The Coalition Against Cholesterol

SO FAR THE DISSENTERS HAVE BEEN OVERWHELMED by the extravaganza put on not just by the heart institute but by a growing coalition that resembles a medical version of the military-industrial complex. This coalition includes, first, the "authorities"—the experts in the medical schools—most of whom play leading roles in one of the twelve lipid-research laboratories established by the heart institute. Many of these researchers spent many years as principal investigators in MR. FIT and the CPPT, and their research establishments continue to rely heavily on heart-institute funding. Much of the rest of their funding comes from companies that manufacture cholesterol-lowering drugs. Next is the heart institute itself. Is it possible to imagine a more effective scheme than the National Cholesterol Education Program for raising the institute's public profile? The heart institute, in turn, is tied closely to the drug industry. Not only does it frequently test promising new drugs at no charge to the companies, but it readily endorses products it deems useful. And last comes the American Heart Association, which had long urged just such a cholesterol campaign, as part of its sometimes misdirected but long-standing efforts to modify public behavior. This coalition boasts the authority of the federal government, the money and sales forces of the drug companies, and the reach and reputation of the American Heart Association.

The entire establishment is controlled by an interlocking directorate. For example, Robert I. Levy was a lipid expert at Columbia University before helping to launch MR. FIT at the heart institute; next he directed the institute; and now he heads the research subsidiary of a drug company, Sandoz Pharmaceuticals. When the 1984 Consensus Development Conference needed an expert to present an overview of the cholesterol problem, it invited Levy.

Daniel Steinberg is a doctor and cholesterol researcher who headed the lipid-research laboratory at the University of California at San Diego. He was also a principal investigator for the CPPT, and then served on the panel that developed the details of the National Cholesterol Education Program. But his most important role was as the chairman of the Consensus Development Conference panel, which in 1984 came out strongly in favor of a national assault on cholesterol.

That conference also heard from a cholesterol specialist named Antonio Gotto. Gotto was then the president of the American Heart Association, which was pushing for a campaign. He was also the head of the Baylor University lipid-research laboratory and had worked on the CPPT.

For years the American Heart Association's leading diet expert was a Dallas cholesterol researcher named Scott M. Grundy. The consensus conference heard him as a main speaker on diet. Grundy also chaired the subcommittee that drew up the diet provisions of the National Cholesterol Education Program. His laboratory at the University of Texas has tested cholesterol-lowering drugs.

Last November the heart institute sponsored a national conference on cholesterol, for which the chairman was John LaRosa. LaRosa heads the lipid laboratory at George Washington University. He also chairs the diet committee of the American Heart Association. He spent years as an investigator in the CPPT.

When Merck Sharp & Dohme introduced its powerful cholesterol-lowering drug lovastatin, the whole apparatus went into action. For reporters who might want a local flavor Merck helpfully provided the names and telephone numbers of nearby research physicians who would talk about the drug and identify patients, presumably for personal testimonials. It is likely that one reason these physicians consented to such an arrangement is that their laboratories were heavily involved in research funded by Merck. The Merck press release notes that in San Diego a reporter might call Daniel Steinberg; in Houston, Antonio Gotto; in Dallas, Scott M. Grundy; and in Washington, John LaRosa.

There is no reason to doubt the honesty, sincerity, and expertise of any of these men, or a dozen others with multiple roles in the cholesterol establishment. The terrible danger of such a closed loop is that important and basic questions are neither asked nor answered. And that is exactly what happened when a panel of lipid researchers and heart-institute officials designed the National Cholesterol Education Program. To observe the shortcomings, consider how the program works.

What Everyone Is Told to Do

THE NATIONAL CHOLESTEROL EDUCATION PROGRAM divides the American public into three groups. People with serum-cholesterol levels of 240 milligrams per deciliter or more have "high blood cholesterol" and require treatment under medical supervision, by drugs or diet or both, for the rest of their lives. There is no quantum leap in risk at this level; it was arbitrarily selected to target 25 percent of the adult population. Next come those with "borderline-high" cholesterol levels, defined as 200–239 mg/dl. In this group men with one additional risk factor and women

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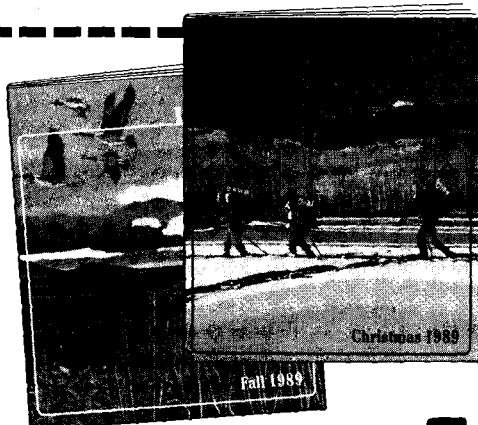
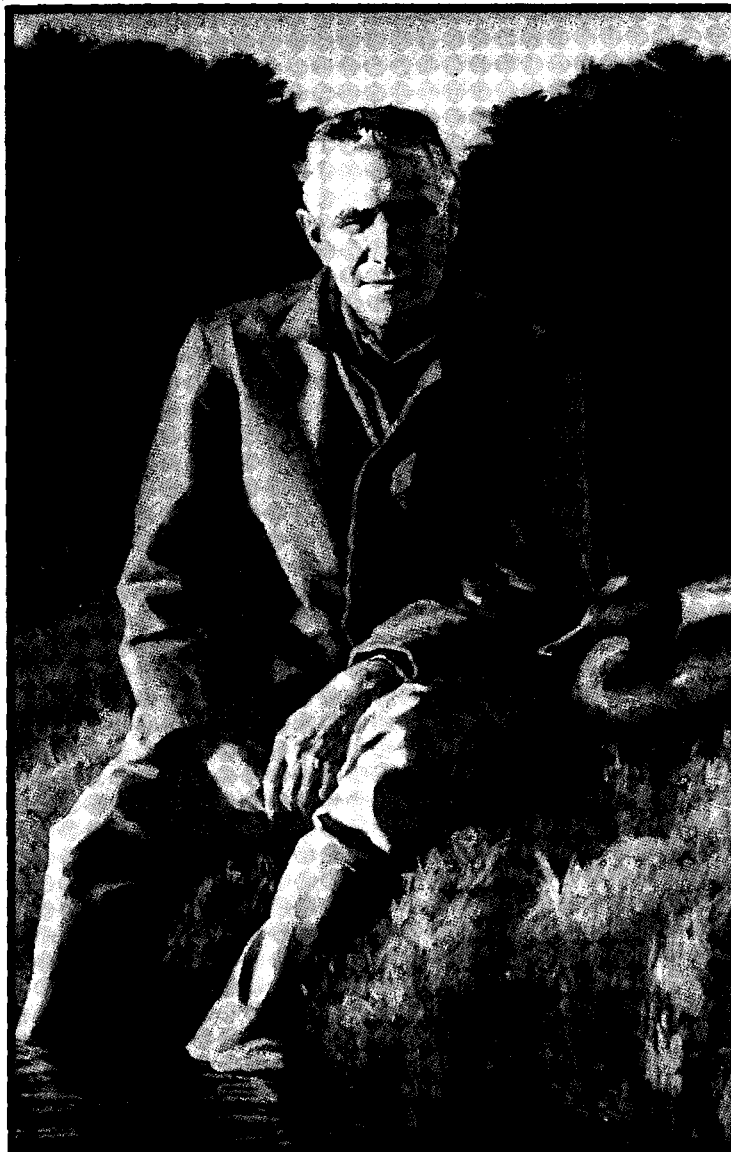
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with two are said to require medical treatment. (Additional risk factors include smoking, obesity, diabetes, high blood pressure, a family history of heart disease, other vascular disease, and low levels of HDL, or high-density lipoprotein.) The intent of the program's designers to play on fear can be seen in the decision to label as "borderline-high" those levels that are actually average. Finally, those with levels below 200 mg/dl are in the "desirable" range. People in this group can be released with a lecture or a brochure about the dangers of cholesterol, and retested every five years.

Considering that treatment may prove unpleasant, inconvenient, expensive, or all three, it is obviously important to identify correctly those people likely to reap some benefit. Nevertheless, the panel that designed the National Cholesterol Education Program knew that it would result in the treatment of millions of people who had been wrongly classified.

Poor performance by clinical laboratories accounts for part of the problem. The heart institute's lipid-research laboratories proved that serum-cholesterol levels can be measured accurately: a careful series of tests revealed an average error of one to two percent. The equipment in all twelve laboratories had been calibrated to the same reference blood sample. This was a crucial step, because a key danger in measurement is an upward or downward bias in all results from a particular lab. The program's laboratory-standards panel set as a final target a three-percent rate of error which although it would result in some misclassification, would confine the errors to borderline cases.

Unfortunately, hardly any clinical laboratories meet this standard. The College of American Pathologists surveyed a group of laboratories and found that the error rate was, on the average, 6.2 percent. A survey last year showed that one out of five clinical laboratories had an error rate of nine percent or more. And these are the good laboratories, the 5,000 that are voluntary members of a quality-assurance program of the College of American Pathologists. Three quarters of the major clinical laboratories are not members. And the error rate in the 40,000 mom-and-pop laboratories in doctors' offices and group practices is anyone's wild guess.

How serious is a nine-percent average rate of error? Taking into account that some errors will be smaller and others larger than average, in most cases a person with a

cholesterol level of 220 mg/dl could expect a reading anywhere from 187, deep in the "desirable" category, all the way to 267, far into the treatment group.

Consider the experience of Walt Bogdanich, a *Wall Street Journal* reporter who sent blood samples to five different New York laboratories. He got back results that would have placed him in the high, borderline, and desirable groups. When samples from 117 Tennessee state employees were sent to a commercial laboratory, 74 percent of the employees fell into the treatment group. Independent tests showed that only 25 percent should have been so classified. The biggest reason for the discrepancy was that the laboratory equipment accidentally inflated all the readings by approximately six percent.

Such weaknesses were well known to the framers of the National Cholesterol Education Program: most of the facts presented here on error rates are taken from a report prepared for the heart institute. Basil M. Rifkind, the physician who heads the cholesterol-research branch of the heart institute, says, "A lot of medicine is conducted these days in other areas where measurement is less than optimum. Holding back until you're really satisfied would just slow things down tremendously."

Sloppy laboratory work is not the only problem in accurately identifying people who, according to the program, need treatment. Serum-cholesterol levels are not stable. The most detailed report on the problem comes from D. M. Hegsted, of Harvard University, who found a variation of five to nine percent in serum-cholesterol levels even among institutionalized people on a uniform diet. He estimated that taking only one measurement would result in the misclassification of one out of three people tested. The heart-institute panel's recommendation that at least two cholesterol measurements be taken before beginning medical treatment helps but falls far short of resolving the measurement issue.

The adult-treatment panel of the National Cholesterol Education Program inexplicably elected to create an additional and even more serious measurement problem: it based the threshold for drug therapy—the most important decision in the program—not on the simple, widely understood overall serum-cholesterol level but on the level of the LDL component. The panel decided to set the treatment-threshold level of LDL at 190 mg/dl.

The problems of measuring serum cholesterol are minor compared with those of measuring LDL. Laboratory tests for LDL are not generally available. Therefore the panel recommended that physicians deduce the level of LDL using a formula whose key component is high-density lipoprotein. HDL can be measured, but it is present in such small quantities that the error rate is extremely high.

The most serious question raised at the FDA advisory committee review was whether lovastatin (Mevacor) might actually cause heart attacks rather than prevent them.

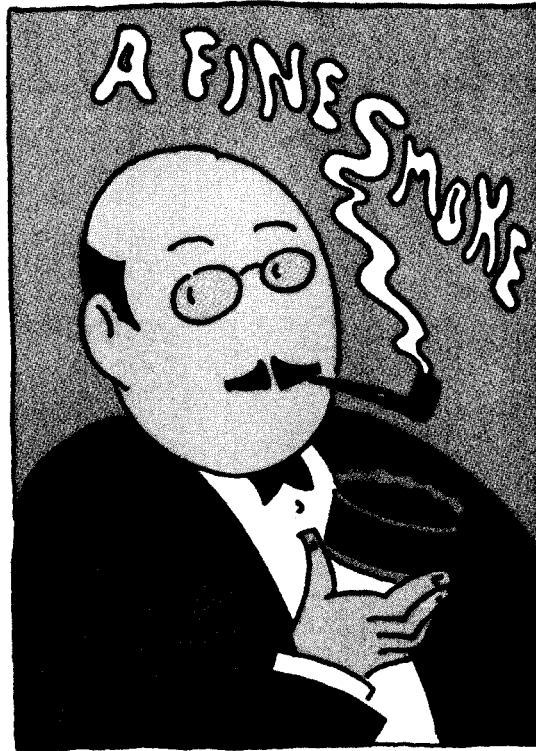
"Often, plasma high-density lipoprotein cholesterol measurements lack sufficient accuracy to be of practical use in an individual clinical setting," a group of researchers from Stanford concluded in the *Journal of the American Medical Association*. Another survey found that in 39 percent of the labs checked the average error rate exceeded 31 percent. The fact that HDL levels vary independent of LDL adds still another source of error.

THE FAILURES OF THE National Cholesterol Education Program grow more severe as a patient whose cholesterol level has been classified as high proceeds with medical treatment. The initial approach calls for a cholesterol-lowering diet of moderate severity, with laboratory tests at six weeks and three months to determine the results of the diet. If little change occurs, a more severe diet is imposed. The principal effect of this therapy will be to introduce 25 million adults and their families to the kind of inconvenience, frustration, and failure that medical researchers experienced in exploring the link between diet and heart disease.

Many observers in the medical community were surprised to discover that the heart institute had made diet the frontline treatment, when sixteen years earlier it had rejected a full-scale diet trial. Given the extensive scientific record on the question of diet, it is remarkable indeed to find dietary intervention once again at the center of attention. The record is replete with evidence that the link between diet and heart disease is weak, and efforts to alter cholesterol levels with diet are maddeningly complicated and fraught with peril.

The Framingham data, as noted earlier, showed no relationship between diet and serum-cholesterol levels. This means that those with high serum-cholesterol levels might well have had low-cholesterol diets, and that some of those with low serum-cholesterol levels were gorging themselves on eggs and meat. The problem was nowhere more clearly illustrated than in one of the heart institute's own major diet studies.

The diets of 16,349 men in Framingham, Puerto Rico, and Honolulu were examined, and the subjects were followed for an average of six years. Then the diets of those who had experienced heart attacks were compared with the diets of those who had not. There was no difference between the diets in amounts of cholesterol. There was



also no difference in the two groups' consumption of saturated fats or total calories. And these similarities were found in all three geographic areas.

Only one dietary difference emerged. Alcohol consumption was 33 to 100 percent higher in those free of coronary heart disease. William P. Castelli, the current director of the Framingham study, found the likely reason for the effect of alcohol in a separate project: alcohol raises levels of HDL, or so-called good cholesterol. This discovery must have left diet researchers thoroughly frustrated. (Having spent years studying heart disease, they emerge with the advice "Have another drink.")

"If the cross-sectional correlations among Japanese men in Honolulu and San Francisco could be translated into intervention results," Castelli wrote in *The Lancet*, "a non-drinker who began drinking 5 oz. alcohol/week would accomplish as large a reduction of L.D.L. cholesterol as he could by the usually suggested lipid-lowering diets."

Castelli hastened to add that he was not serious. "This is not, and should not be taken as, a prescription for altering blood-lipids by increasing alcohol intake. On the contrary it is a warning against too hasty modification of dietary habits on the basis of limited and poorly understood evidence." But the diet study and the alcohol study, published in 1977 and 1981, came quite late in the game, and did little to shake a deeply held belief in the role of diet. This belief had roots in earlier research of such enormous impact that it needs to be included in any serious discussion of diet and heart disease.

The study, called "Coronary Heart Disease in Seven Countries," was led by one of the most energetic and prolific figures in heart research, Ancel Keys, of the University of Minnesota. He studied male Japanese farmers and Finnish factory workers, Italian peasants and U.S. railroad employees, Dutch shopkeepers, Greek island villagers, and Yugoslavian food-processing workers. When Keys put all his data together he had a striking chart in which a nation's rate of coronary heart disease appeared to march upward in lockstep with the amount of saturated fat in that nation's diet. In Japan, for example, both the consumption of animal fat and the incidence of coronary heart disease were a fraction of what they were in the United States.

So how are the two apparently conflicting findings on diet to be reconciled? In the Framingham study, no link

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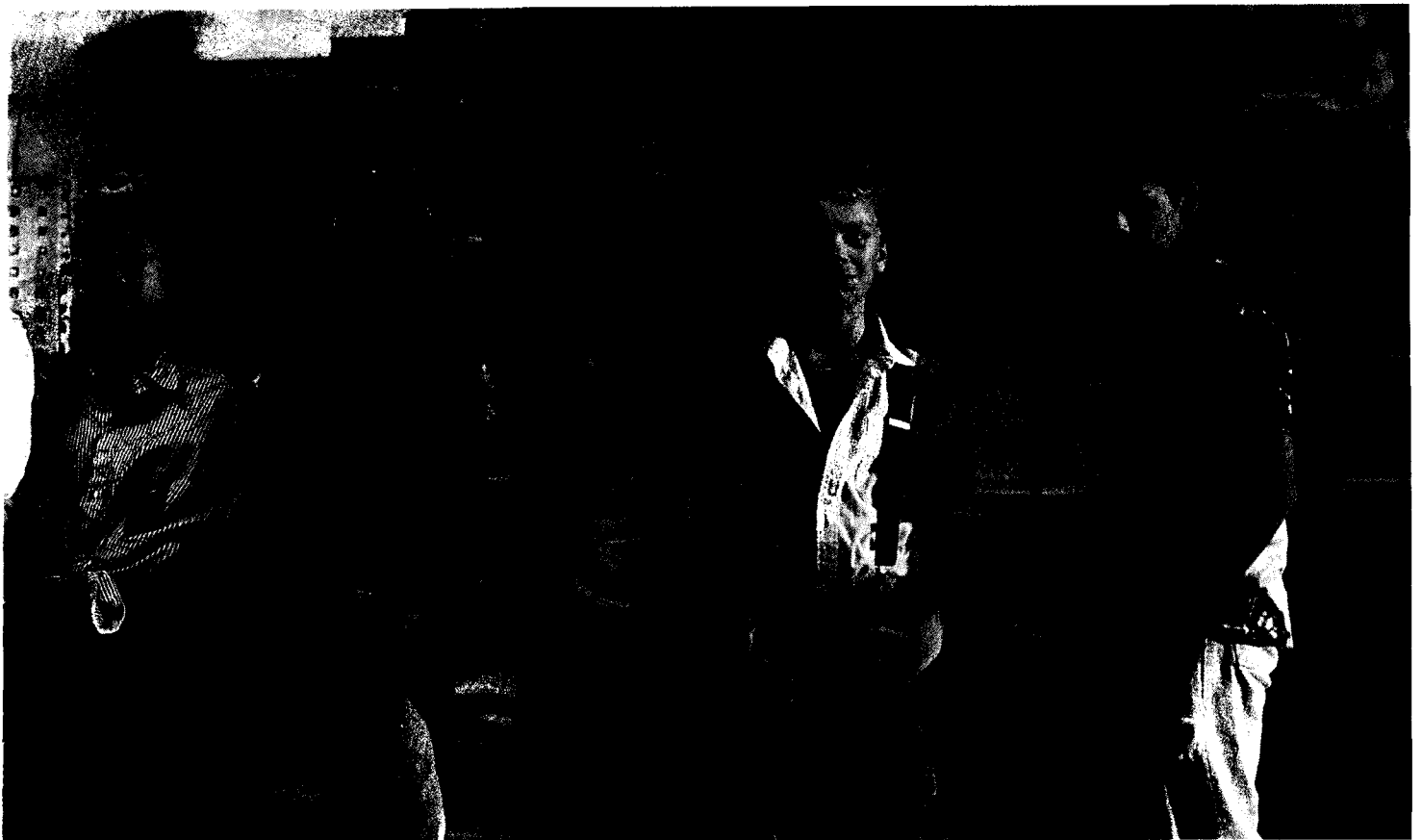
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can be detected between the cholesterol or saturated fat in residents' diets and either their blood-cholesterol levels or their chances of suffering heart attack. But taken as a group, the Framingham residents consume more animal fat and also experience higher rates of heart disease than their Japanese counterparts.

An important lesson can be learned from the resolution of similar contradictions about salt and high blood pressure. The human body has a powerful mechanism to maintain a specific level of dissolved salt in the bloodstream and quickly eliminate any surplus. Therefore normal adult consumption of salt can vary over an extremely wide range without altering the internal balance. Researchers discovered that the populations of some countries, particularly certain underdeveloped nations, had diets that included much less salt than the typical American diet does. These countries also had a much lower incidence of high blood pressure. Since the American diet includes far more salt than is biologically necessary, health authorities launched a vast campaign to get the nation to cut down on salt.

Nearly two decades after limiting salt became synonymous with healthful living, the relationship was convincingly refuted. A major international research project in thirty-two nations showed that while the incidence of hypertension varied widely, salt intake had little to do with

it. Only if salt was almost eliminated from the diet was there a useful effect. The life-styles and habits of millions of Americans had been changed to little or no purpose.

Where did the research go wrong? Comparisons between countries can be particularly treacherous, says William Ira Bennett, a physician and the editor of the *Harvard Medical School Health Letter*. "This is, at best, a tricky business," he says, "because you can bet that differences in salt intake are not the only differences between two such populations." Furthermore, the researchers initially did not measure dietary salt accurately enough and did not study enough countries.

The international comparisons of cholesterol levels are probably also misleading except at the extremes. Should not comparisons of diet and cholesterol levels among thousands of similar people in one community provide more useful information than a simple comparison between two dissimilar countries? The lesson of international studies may ultimately be that only a diet almost entirely free of animal fat and cholesterol will lower blood-cholesterol levels reliably.

Partly to accommodate the American palate, more moderate cholesterol-lowering diets have been developed in an attempt to prevent heart disease. Most such diets, however, are unlikely to be effective. Only large

THE BLUES

What did I think, a storm clutching a clarinet
and boarding a downtown bus, headed for lessons?
I had pieces to learn by heart, but at twelve

you think the heart and memory are different.
"It's a poor sort of memory that only works
backwards," the Queen remarked." *Alice in Wonderland*.

Although I knew the way music can fill a room,
even with loneliness, which is of course a kind
of company. I could swelter through an August

afternoon—torpor rising from the river—and listen
to Stan Getz and J. J. Johnson braid variations
on "My Funny Valentine" and feel there in the room

with me the force and weight of what I couldn't
say. What's an emotion anyhow?
Lassitude and sweat lay all about me

like a stubble field, it was so hot and listless,
but I was quick and furtive as a fox
who has his thirty-miles-a-day metabolism

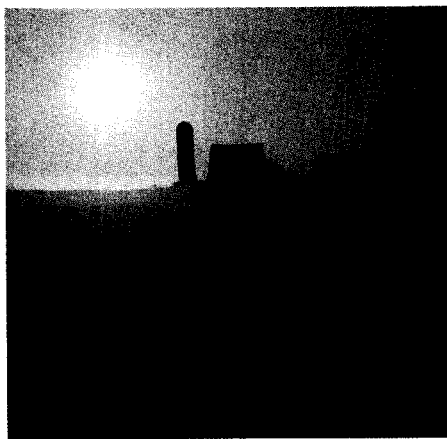
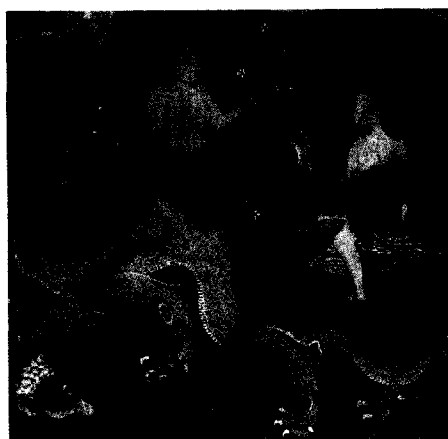
to burn off as ordinary business.
I had about me, after all, the bare eloquence
of the becalmed, the plain speech of the leafless

tree. I had the cunning of my body and a few
bars—they were enough—of music. Looking back,
it almost seems as though I could remember—

but this can't be; how could I bear it?—
the future toward which I'd clatter
with that boy tied like a bell around my throat,

a brave man and a coward both,
to break and break my metronomic heart
and just enough to learn to love the blues.

—William Matthews



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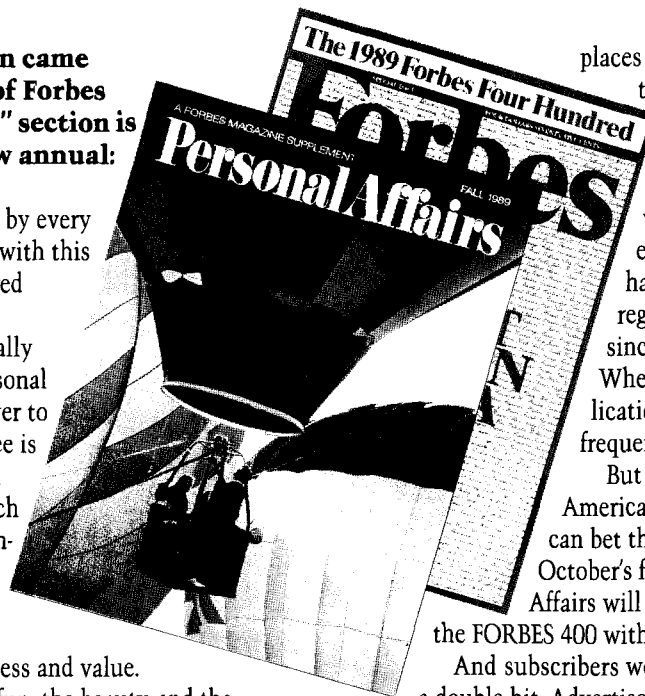
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experiments involving free-living populations give realistic estimates of the cholesterol-lowering likely to be achieved.

Here is a table of the large experiments on diet:

Trial	Year	Participants	Length	Cholesterol-Lowering Effect
Heart-Diet Pilot	1968	962	7 months	10.5%
MR. FIT	1984	6,428	7.5 years	6.7%
Northwestern*	1986	208	6 weeks	5.2%
CPPT (diet only)	1984	3,806	7.4 years	3.8%

* The Northwestern experiment also had a second phase to test the effects of oat bran. It appeared to reduce cholesterol further, but the reduction was too small to be statistically significant. Despite enormous public interest in oat bran, this seems to be the only sizable study of it among people on otherwise normal diets.

The best result was reported in the Heart-Diet Pilot, in 1968, but this exaggerates the typical cholesterol reductions likely to be achieved today. The investigators eliminated more than a fifth of the volunteers because they were overweight, because they might have other difficulties complying with the diet, or because they might soon quit. Further, the study's strategy, which emphasized eating large amounts of polyunsaturated fat, has since been abandoned because of concern about cancer. More realistic and typical experiences can be found in the MR. FIT and Northwestern trials, which reduced cholesterol by five to seven percent. But the investigators in these two trials had hoped to duplicate the results of the Heart-Diet Pilot, and were disappointed. The dietary results in the CPPT, in contrast, may understate the outcome of a strict diet. The diet was supplemental to the treatment under study—the drug cholestyramine—and those whose cholesterol levels responded markedly to diet were deliberately excluded.

Average cholesterol-lowering results, however, conceal the variation in the response of individuals. The Heart-Diet Pilot provided the most detailed insights into individual variation. It appears that about one in seven people may prove to be diet responders, and experience blood-cholesterol reductions greater than the best average results shown in the table. Little is known about diet responders, however, including exactly how many there are and whether a strong initial diet response is temporary or can be sustained for many years. Anecdotal evidence of dramatic changes in cholesterol from diet most likely comes from diet responders, poor laboratory measurement, normal individual variation in blood-cholesterol levels, or some combination of the three. Thus those with a weak dietary response can expect cholesterol reductions of 3.8 percent or less, the lucky diet responders 10 percent or more, and the vast majority of people about five or six percent. If the evidence is absolutely clear on one question, it is that diet offers no short-term benefits; to produce a measurable effect on the slowly developing obstructions in the coronary arteries requires adherence for five to twenty years.

These facts must have been familiar to the doctors who developed the adult-treatment guidelines for the National Cholesterol Education Program. Not only are these the major studies from the scientific literature, but, again, many of the panel members were principal investigators for the two largest trials, MR. FIT and the CPPT. The guidelines repeatedly endorse diet intervention but are curiously silent about what specific results may be expected. In fact, in the only mention of an expected lowering of blood-cholesterol levels the past reductions claimed are from an unidentified metabolic ward study achieving results two to four times higher than those the heart institute actually achieved in major trials.

Equally curious was the decision to enforce diet through medical supervision. Some doctors might like the extra business, but few are trained or equipped to give the detailed dietary counseling and follow-up that are essential to achieve any results.

The final component of the program is the recommendation that millions of Americans take for the rest of their lives an expensive and unpleasant drug that the heart institute's own elaborate tests showed had at best a marginal effect. "The drug of choice," according to the program's treatment guidelines, is cholestyramine (Questran), or the chemically similar colestipol (Colestid). James I. Cleeman, the program coordinator, has estimated that one out of five people treated would ultimately be placed on drug therapy. Early reports at the American Heart Association meeting last November suggested that Cleeman's estimate was proving accurate: in one Iowa community 19.4 percent of the people treated were placed on drugs, in another 18.7 percent.

The benefits of cholestyramine were explored in detail earlier in this article: giving the drug for 7.4 years to 1,906 men at extremely high risk of heart attack had no effect on life expectancy but did produce a favorable trend toward fewer heart attacks, though this benefit occurred on too small a scale to pass the usual statistical tests of validity. And what about the costs? A total of \$23 million in drugs may have prevented thirty-six heart attacks. This works out to \$647,205 per heart attack possibly forestalled. Since the heart institute now proposes to give cholestyramine to those at lower risk than the specially selected trial participants, the statistics given above exaggerate the benefits. And although different approaches to cost-benefit analysis may produce somewhat different results, the remarkable fact is that the heart institute steadfastly refused to consider the cost question in any way.

THE COST ISSUE WAS FIRST RAISED AT THE CONSENSUS conference, in 1984. Robert Levy cut off a discussion about cost with this statement: "When you think about costs, think about the fact that coronary artery disease is costing sixty billion dollars. So how

much is worthwhile for relieving those costs?" Daniel Steinberg, the consensus-panel chairman, said, "I don't think we're trying to focus here on the costs. I think we're here to decide what is in the best interests of the health of the nation. We'll let some other people at some other conference work that out." But Steinberg didn't work the problem out when he became a member of the panel that designed the treatment guidelines for the program, and in fact no one at the heart institute seems to have addressed the cost question. James Cleeman has said that not only would it be difficult to estimate the costs and benefits but it would be "inappropriate."

What might those costs be? The most expensive component is drug therapy. Cholestyramine for five million people would cost, at current retail prices, approximately \$10 billion a year. The cost of laboratory tests and physicians' services should total \$3 billion to \$10 billion, and therefore the National Cholesterol Education Program should cost society \$10 billion to \$20 billion a year. This amount is equivalent to the total federal nutritional assistance to the poor, including food stamps. It is roughly equivalent to the cost of all federal programs to build and improve highways. It is two to three times the cost of space flight and exploration.

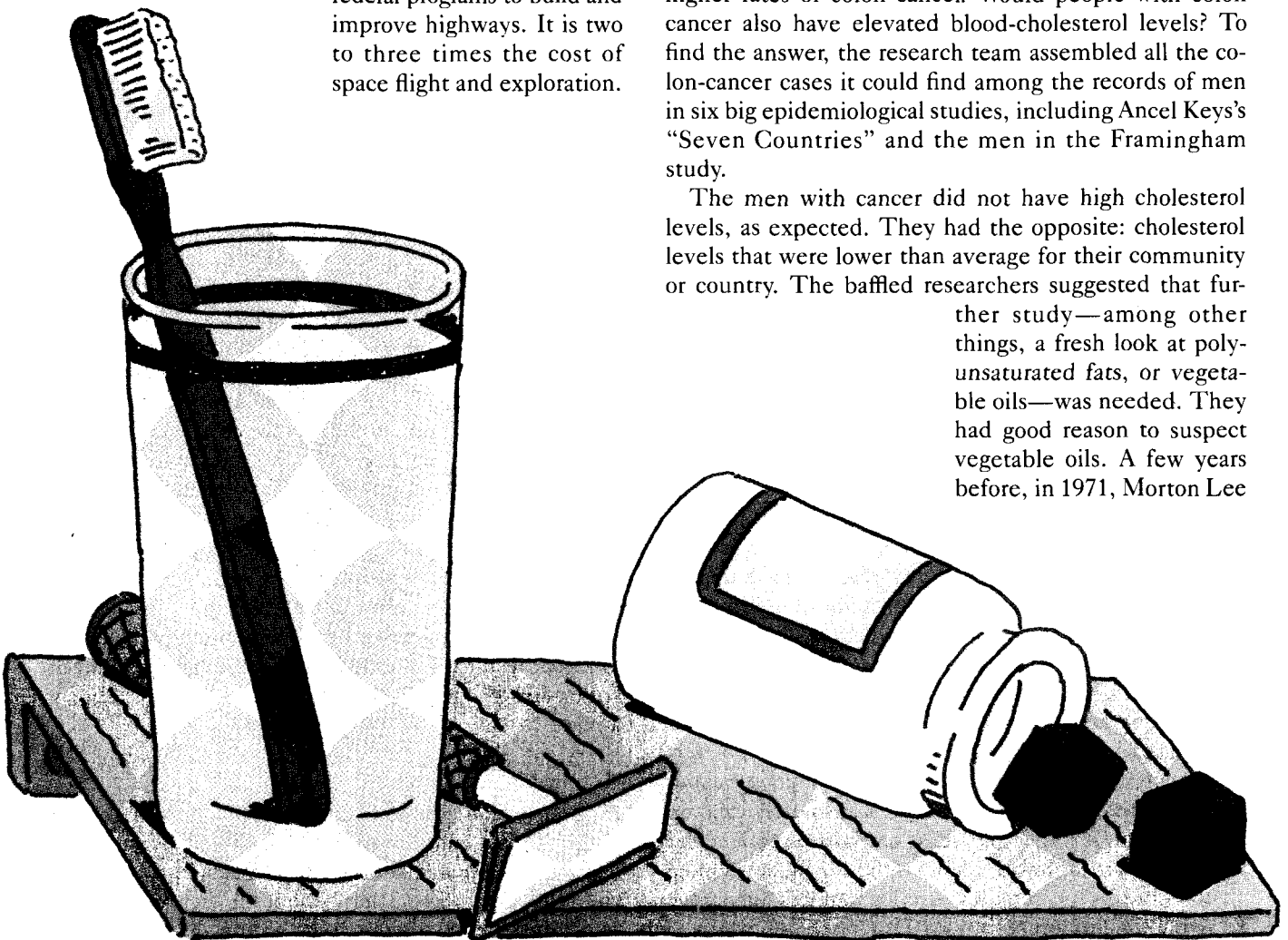
Some cholesterol-program officials object to comparing the indirect costs of the cholesterol program with the direct ones of federal-spending programs involving public money. The enormous costs of the program are actually more insidious. In an age of soaring deficits a \$10 billion to \$20 billion new federal program would face intense critical scrutiny, and severe competition from other pressing national needs. The costs of this program are better concealed but no less real. For example, at a monthly cost of \$120 to \$150, drug treatment may double a patient's annual medical costs. The money for this effort will be collected primarily for the benefit of drug companies, in a scheme engineered by a small group of men and women who mistakenly believed they were doing something good.

The Dangers of Low Cholesterol

IN 1974 A GROUP OF LEADING EPIDEMIOLOGICAL researchers believed that cholesterol was going to be found guilty of another crime: an association with high rates of colon cancer. Such a trend had already been suggested by the data from entire countries—nations with diets rich in saturated fats also tended to have higher rates of colon cancer. Would people with colon cancer also have elevated blood-cholesterol levels? To find the answer, the research team assembled all the colon-cancer cases it could find among the records of men in six big epidemiological studies, including Ancel Keys's "Seven Countries" and the men in the Framingham study.

The men with cancer did not have high cholesterol levels, as expected. They had the opposite: cholesterol levels that were lower than average for their community or country. The baffled researchers suggested that further study—among other things, a fresh look at poly-

unsaturated fats, or vegetable oils—was needed. They had good reason to suspect vegetable oils. A few years before, in 1971, Morton Lee



Pearce and Seymour Dayton had reported in *The Lancet* an excess of cancer deaths in a diet trial using diets high in polyunsaturated fats. In an action that was to be repeated many times, the researchers who favored lowering cholesterol levels through diet published a rebuttal, saying that Pearce and Dayton's results were likely a result of random chance.

However, the same relationship between low cholesterol levels and cancer was found again in 1978, in the World Health Organization's huge trial of clofibrate. So many cancer cases occurred in the treatment group that they outstripped any beneficial or protective effect of the cholesterol reductions. The findings raised more questions than they answered. Was it the drug or the cholesterol reductions that caused the cancer? The weight of expert opinion favored blaming the drug. Other, smaller studies linking low cholesterol levels to cancer in a variety of sites began to appear, but the authors usually dismissed what they found as "pre-clinical" indications of cancer—a matter of no great importance.

By 1980 French researchers had found the same relationship in a study of 7,603 male government employees. The incidence of cancer began to climb steadily as cholesterol levels fell below 200 mg/dl, into the range that the heart institute today calls "desirable." The French findings did not suggest that high cholesterol levels have any protective effect against cancer. Even though the low cholesterol levels were measured and maintained for as long as seven years before the onset of cancer, the French researchers accepted the prevailing view that this was not likely to be a causal link "but in all probability reflects the advance of the clinical course of cancer."

So many investigators had found the association between low cholesterol levels and cancer that in the early 1980s epidemiological researchers began to test the customary explanation that a drop in cholesterol level was merely a by-product of cancer that could not yet be detected. In an analysis for the *Journal of the National Cancer Institute*, Paul D. Sorlie and Manning Feinleib went back to the Framingham data. They reported that "in some cancer cases . . . the serum-cholesterol level was lower than that expected at as much as 16–18 years before cancer diagnosis." That made low cholesterol almost as powerful a predictor of cancer as high cholesterol was of coronary heart disease. They did not, however, regard their analysis as conclusive.

Next, in 1987 researchers at the National Cancer Institute measured the same relationship among 12,488 men and women who participated in the National Health Nutrition and Examination Survey. This was a bigger, more recent, and more representative sample of the American population than the Framingham group. The men with the lowest cholesterol levels were more than twice as likely to be diagnosed with cancer as those with the highest cholesterol levels. Further, the longer the follow-up the stronger the relationship. Researchers also found a

similar but much weaker relationship among women. "It may be premature to dismiss the inverse relation between serum cholesterol and cancer simply as a pre-clinical marker of disease," the authors wrote in a 1987 *Lancet* article.

The statistical association found in so many studies neither proves nor disproves that a causal link exists between low cholesterol levels and cancer. Nonetheless, it seems plain that these findings have been unwelcome to many researchers, who have exercised an extraordinary caution that was missing from discussions of the relationship between high cholesterol levels and heart disease. It is not, however, difficult to find a theory to explain the link between low cholesterol levels and cancer. The British heart researcher Michael F. Oliver asks, "How much cholesterol can be depleted from cell membranes over many years without alteration of their function?" In other words, did the membranes' functioning become sufficiently compromised to admit carcinogens?

CANCER IS NOT THE ONLY HAZARD THAT HAS BEEN associated with low cholesterol. Studies from Japan raise the question of whether low cholesterol levels increase the risk of stroke. As much as American researchers have admired what seems to be the effect of the Japanese diet in keeping blood-cholesterol levels and heart-disease deaths far below those found in the United States, other effects of the Japanese diet may not be so desirable. Japan experienced far higher rates of stroke and stomach cancer than the United States did. Heart-institute researchers apparently believed that in imitating the Japanese diet they could achieve one effect without incurring the others. But some Japanese epidemiologists weren't so sure. In the journal *Preventive Medicine*, Hirotsuga Ueschima and two colleagues published in 1979 a study showing that in rural communities where the average blood-cholesterol levels were below 180 mg/dl the rates of stroke were two to three times higher than those in areas with higher cholesterol levels. (The Japanese experts described the diets that produced typical serum-cholesterol levels of 167 as "grossly inadequate.") Once again heart-institute researchers greeted the unwelcome news with a torrent of objections.

In fact, the evidence is far from conclusive, in part because so little is known about the low cholesterol levels that the heart institute is aggressively pushing the American public to achieve. Despite decades of clinical trials using a multitude of strategies, the sad fact remains that none of them reduced cholesterol enough to provide an opportunity to understand either the risks or the benefits of low cholesterol levels. The trials have generally selected only subjects with extremely high cholesterol levels, and failed to alter those levels by much. The most aggressive dieting lowered cholesterol levels by only five to seven percent, drugs by only eight to ten percent.

A Powerful New Drug

THE RISKS OF LOW CHOLESTEROL MIGHT HAVE remained a mostly hypothetical question had not the Food and Drug Administration in September of 1987 approved the cholesterol-lowering drug lovastatin. As one heart-institute expert put it, lovastatin looked almost too good to be true. At maximum dosage it appeared to lower cholesterol levels by nearly a third, or at least twice as much as its competitors could. Lovastatin, which is administered as small pills, presents none of the adherence problems of cholestyramine, which patients have to take every day in the form of millions of tiny indigestible plastic beads. Here at last was a drug with the potential for resolving the cholesterol controversy in a decisive manner. It was just possible that cholesterol-level changes of this magnitude might provide conclusive evidence of a capacity to save lives.

Lovastatin, or Mevacor, was approved and is now moving into widespread use without having completed any trials to measure its effect on coronary heart disease and systematically monitor potential side effects. The heart institute drew up a plan to test lovastatin among the elderly, but has so far declined to implement it.

Although the heart institute is not willing to test lovastatin, it may have unwittingly become the drug's most important promoter. The National Cholesterol Education Program does not recommend lovastatin, because of uncertainty about its long-term safety. But it is so difficult to persuade patients to take cholestyramine that millions of people will no doubt be placed on long-term lovastatin therapy.

The experts who have evaluated lovastatin thus far have pronounced the known side effects acceptable, both in terms of the number of people affected and in severity. However, lovastatin deserves careful scrutiny. Both the great appeal and the potential hazard of lovastatin come from how it works. As was noted earlier, the liver is the biggest consumer and manufacturer of cholesterol compounds in the human body. Lovastatin inhibits the liver's capacity to synthesize cholesterol. Therefore the liver must obtain the cholesterol it needs by absorbing greater quantities from the bloodstream, and blood-cholesterol levels plunge as a result.

Although lovastatin was heralded as a revolutionary new drug when it was approved, cholesterol-synthesis inhibitors were not new, nor was earlier experience encouraging. The first such drug was called triparanol, and it was voted by physicians the most important advance in clinical medicine in 1960. When some doctors, including Eliot Corday, the Los Angeles cardiologist, warned that it might be hazardous, they were ignored by clinicians eager for a new tool to lower cholesterol levels. Several authorities enthusiastically endorsed it. Two years later the drug was hastily withdrawn, because of severe side

effects, including the rapid formation of cataracts, severe skin disorders, and heavy loss of hair. It might have become a celebrated public scandal rather than a historical footnote had not the news media's attention been raptly focused on another drug just marketed by the same company, a drug called thalidomide.

The second inhibitor was called compactin, and it appeared at almost the same time that lovastatin was first being tested in lipid laboratories. The earliest journal articles on the subject often mention them together. Compactin was rapidly approved for use in Japan. Like triparanol, it was withdrawn. The reasons for this are not known. The sole clue to compactin's ill effects comes from Basil M. Rifkind, of the heart institute. "It was hastily withdrawn, under a veil of secrecy," Rifkind told the institute's advisory council, "and no explicit statements have come out with respect to it. The problem there, however, appears to have surrounded some neoplasms [tumors] in dogs."

One might have expected questions about the possible association between cholesterol reduction and cancer to have been raised when lovastatin came up for approval before an FDA advisory committee. However, the most serious question raised at the committee review was whether lovastatin might cause heart attacks rather than prevent them. That another cholesterol-lowering drug, dextrothyroxine, caused heart attacks was not discovered until the systematic monitoring of a heart-institute clinical trial took place. Saul Genuth, one of the members of the committee that was considering lovastatin, said in a letter to his fellow members, "The most important safety issue is that of the 12 cardiovascular deaths and 24 serious cardiovascular events recorded in approximately 1000 patients. The sponsor simply dismisses these as unrelated to drug administration." Then, in a wry understatement, Genuth said, "If perchance, by some mechanism, the drug can itself cause myocardial infarction [heart attacks], then the benefit-to-risk ratio may be considerably lower than the sponsor projects in this application."

The advisory committee did not pursue the issue with Merck, perhaps because Genuth was not present at the review to press the case, and Genuth did not oppose approval of lovastatin. The committee recommended approval of a drug intended for use over a lifetime even though the major clinical trial had lasted only twelve weeks and the long-term experience with it was limited to 200 people who had taken it for two years. Lovastatin became the most rapidly approved drug in the FDA's history.

By mid-1988 Merck had completed a trial comparing lovastatin with cholestyramine and published the result in the *Journal of the American Medical Association*. It concluded that lovastatin was "both more effective and better tolerated" than cholestyramine. The trial lasted only twelve weeks. In that brief time, among 176 patients tak-

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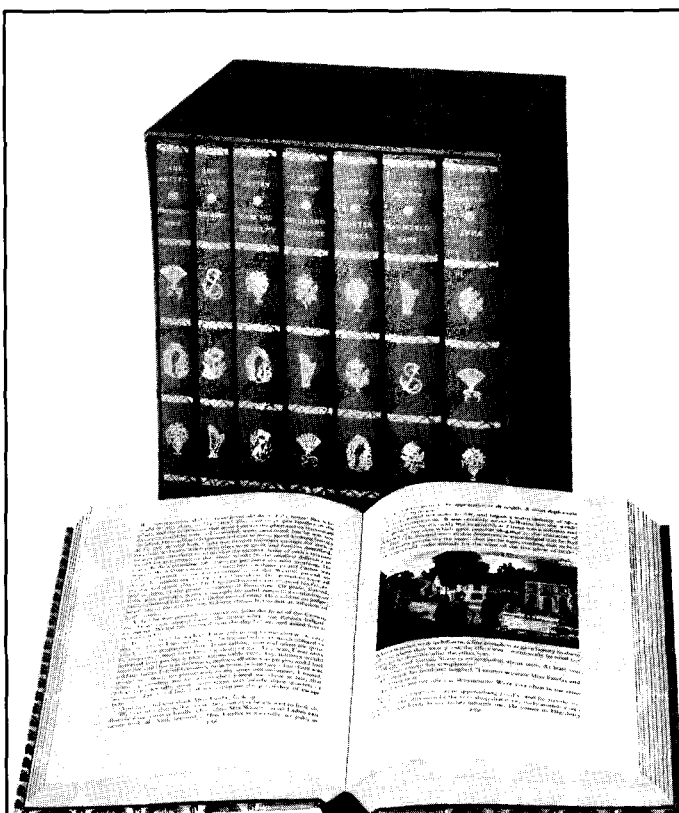
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Cancer is not the only hazard that has been associated with low cholesterol. Studies from Japan raise the question of whether low cholesterol levels increase the risk of stroke.

ing lovastatin, there were one fatal heart attack, two non-fatal heart attacks, and one episode of severe chest pain requiring hospitalization. A single case of angina occurred among the patients taking cholestyramine. The trial was too short and had too few subjects to pass normal statistical tests. But the authors of the journal article did not even comment on the suspicious number of heart attacks that had occurred.

Other fragmentary data about the adverse effects of lovastatin continue to accumulate. The package insert warns that insomnia may be observed as an occasional side effect. In a letter to the *New England Journal of Medicine* one doctor noted a milder but much more frequent effect on the brain: "In our clinics we have observed no inability to sleep in patients taking lovastatin, but 9 of 51 patients taking the drug (17.6 percent) have reported a shortening of their sleep period of from one to three hours. It is known that lovastatin does cross the blood-brain barrier." If experience with animals is included, the potential long- and short-term hazards of lovastatin include heart attacks, cancer, stroke, liver damage, cataracts, and severe muscle pain and damage.

The account presented here of the possible hazards of lovastatin was assembled from meeting transcripts, letters, and other materials not easily available to conscientious physicians. If they wanted to learn about the risks and benefits of lovastatin, they might have read the summary that appeared in the *New England Journal of Medicine*, written by Scott Grundy. In a laudatory nine-page article Grundy devotes just five paragraphs to adverse effects, concluding that drugs that work the way lovastatin does "produce no important short-term side effects in most patients with hypercholesterolemia. . . ." He warns, however, that until more is known about the drug, physicians should monitor their patients for evidence of damage to muscles and the liver.

The most important facts about lovastatin remain unknown. There are no immediate and tangible benefits to lowering one's cholesterol level. No painful symptoms will disappear. No invading bacteria will be killed. Any benefits will occur over the long term and be reflected in fewer heart attacks and fewer deaths. If there are serious dangers in drastic changes in cholesterol levels, such as heart attacks, cancer, or stroke, these too will be reflected only in the long term, and discovered only through the

rigorous study of a randomized trial lasting years. The voluntary reporting of side effects to the drug manufacturer and occasional letters in the medical journals are simply not systematic or thorough enough to assess side effects. Lovastatin could be a breakthrough drug. Or, like so many previously tested cholesterol-lowering drugs, it could do

more harm than good. The tragedy is that we probably won't ever know. By late last year Merck reported that at least 350,000 people were taking lovastatin, and it is reasonable to assume that the number climbs rapidly every day.

THE BIGGEST LONG-TERM COST OF THE NATIONAL Cholesterol Education Program may be the delay it entails in the search for a better understanding of heart disease. The heart institute has declared that the major cause of heart disease is elevated levels of serum cholesterol, specifically LDL.

But conflicting evidence has begun to mount. In Helsinki, Finland, a clinical trial recently succeeded in reducing fatal and nonfatal heart attacks by 34 percent and met the usual statistical tests, although, like the other trials, it had no effect on total mortality or life expectancy. The Helsinki trial is the most promising effort yet. It tested a drug called gemfibrozil (Lopid), a chemical relative of clofibrate, and the participants were Finnish men with severely elevated cholesterol levels. Although the Helsinki trial was a success in the battle to prevent coronary heart disease, it was also a distinct setback for the heart institute's official view that LDL is crucial. The most powerful effect of gemfibrozil is to raise levels of HDL, the so-called good cholesterol; it also seems to lower LDL, but its effect is not as powerful or consistent as that of cholestyramine. (Lovastatin appears to raise HDL slightly while lowering LDL by large amounts.)

Even though gemfibrozil was apparently twice as effective as cholestyramine in reducing the incidence of heart attacks, the heart institute maintained its position. Rifkind, writing in the *New England Journal of Medicine*, was troubled by gemfibrozil's failure to reduce LDL. He said, "It is difficult at present to define its precise place in the treatment scheme because of its variable effects on levels of LDL cholesterol." He urged the nation's physicians to continue to follow the heart institute's guidelines—or, in effect, to ignore the trial. Gemfibrozil fared little better at the FDA, where an expert committee concluded that for most patients its benefits in preventing heart disease would not outweigh its risks, which may include gall-bladder disease and cancer.

Other evidence also supports the idea that HDL is im-

portant. Framingham researchers found that HDL levels are a more accurate predictor of coronary heart disease than LDL levels. Studies of the positive effects of exercise show that the key benefit is probably the raising of HDL levels. Coronary heart disease begins to develop in young men at puberty primarily because of a sharp drop in HDL levels which does not occur in women.

HDL remains a promising frontier. But whether progress toward more effective prevention of heart disease will come through further trials of lovastatin or through continued research into HDL, it cannot but be slowed by those who have erroneously convinced themselves that they have identified the villain.

Who Will Live Longer?

THE FEAR OF DYING IS WHAT WILL BE USED TO move millions of people into treatment for high cholesterol levels. The language of the cholesterol scare is simultaneously intimidating and vague. "You are at high risk of dying of a heart attack"; "You have dangerously high cholesterol"—these are frightening words indeed. But to probe beneath such generalities is to ask a specific question: What is the actual impact on life expectancy of high or low cholesterol levels? How great a danger to life do we face? Surprising answers to these questions emerge from the same body of heart-institute research that forms the scientific basis for much of what is known about cholesterol.

The elaborate and lengthy MR. FIT trial was quickly forgotten, having failed to demonstrate that following a strict diet, quitting smoking, and lowering blood pressure prevented deaths from heart attack. However, a spin-off project was to have greater influence. A team led by Jeremiah Stamler, of Northwestern University, continued to follow the entire group of 361,662 young and middle-aged men who had originally been screened as possible participants, tallying death rates. Although the team relied on frequently unreliable death certificates and a single cholesterol measurement for each man, the sample was impressive—seventy times as large as that for the Framingham study, twenty years more recent, and consisting of residents of eighteen cities rather than a single Massachusetts town. The MR. FIT spin-off gave rise to one of the most oft-repeated slogans of the campaign for cholesterol re-

duction: Each one-percent reduction in cholesterol will lead to a two-percent reduction in the risk of dying of coronary heart disease.

The actual finding was the reverse: for each one-percent increase in cholesterol level, the risk of coronary heart disease increased two percent. The researchers also found no particular threshold at which the danger leaped higher—just a steady increase in the risk of dying of coronary heart disease as cholesterol levels rose. Furthermore, the 20 percent of men with the highest cholesterol levels were about three times as likely to die of heart disease as the 20 percent with the lowest cholesterol levels. The study has since become an important part of the empirical foundation for the assault on cholesterol.

The MR. FIT spin-off report, however, omitted the data needed to answer the critical question of how high or low cholesterol affects life expectancy. The answer can be deduced from a table published in a later article, about the same spin-off group, which was followed for seven years.

Serum-Cholesterol Level	Living	Dead From All Causes	Dead From Coronary Heart Disease
Low (202 mg/dl or less)	97.8%	2.2%	0.5%
Average (203–244 mg/dl)	97.3%	2.7%	0.9%
High (245 mg/dl or more)	96.2%	3.8%	1.7%

When one looks at total mortality and not just deaths from coronary heart disease, the hazards of high cholesterol levels appear quite modest. Further, these figures apply to only a minority of those at risk: young and middle-aged men. As noted earlier, the relationship between

high cholesterol levels and heart attacks is weak or nonexistent among the elderly, in whom most deaths from heart disease occur, and among pre-menopausal women, in whom the disease is rare.

An answer to the broad question of the benefits to life expectancy from lowering cholesterol levels through diet was found by a team of physicians and researchers at Harvard University. Using the risk-factor equations from the Framingham study and the diet results of the MR. FIT trial, the researchers calculated the benefits of a lifelong program of dieting. The team, led by William C. Taylor, published the results in the *Annals of Internal Medicine* in 1987. For persons without other risk factors, such as smoking or high blood pres-



sure, they concluded, "we calculate a gain in life expectancy of 3 days to 3 months from a lifelong program of cholesterol reduction." Taylor and his co-authors also said that they might be overstating the benefits of cholesterol reduction, because they had assumed that no other increased risk would arise from limiting cholesterol intake and offset any reduction in the risk of heart disease.

In an accompanying editorial Marshall Becker, of the University of Michigan, wrote, "We should make more effective and efficient use of our resources and regain public confidence by concentrating on a few areas in which deleterious effects on health are clear and profound, such as smoking prevention and cessation, alcohol and drug abuse, and gross obesity."

The article, which was widely discussed, triggered the inevitable rebuttal from the heart institute. But Taylor's defense was persuasive: he noted that heart-institute researchers in Framingham had just published an analysis of cholesterol and life expectancy even more pessimistic than his own. That study is equally revealing.

Four decades after the Framingham study began, the research team examined the question of total mortality and cholesterol. Again the results showed that for those with low cholesterol levels deaths from other causes mostly offset any reduced incidence of coronary heart disease. The researchers found "no increased overall mortality with either high or low serum cholesterol levels" among men after age forty-seven. There was also no relationship among women after age forty-seven, or among women younger than forty, who very rarely have coronary heart disease. Furthermore, the researchers said, people whose cholesterol levels are declining may be at special risk. "After age 50 years the association of mortality with cholesterol values is confounded by people whose cholesterol levels are falling—perhaps due to diseases predisposing to death." Left unanswered was how a spontaneous decline might predispose one to death while non-spontaneous response to treatment would not.

A related issue is the likely role of cholesterol in the phenomenal rise and decline in coronary heart disease. From the Second World War until 1963 the rate of mortality from coronary heart disease rose steadily and alarmingly. Then it declined steeply, throughout the 1970s and into the early 1980s. By 1986 the death rate was 42 percent lower than it had been at the 1963 peak. The cause of this enormous change has never been convincingly explained. But one factor can be ruled out: cholesterol. From 1960 to 1980 there was virtually no change in the average serum-cholesterol levels in the American population. Over twenty years cholesterol levels declined very slightly, leaving the average just three percent lower in 1980 than it had been in 1960. Even this small difference may be nothing more than a measurement error. Whatever saved so many thousands of lives—the reasons remain a mystery—it is clear that cholesterol cannot be included as an important contributor.

What the Data Really Show

THE EVIDENCE ON CHOLESTEROL SHOWS:

First, while the dangers of high blood-cholesterol levels have frequently been exaggerated, no evidence suggests anything desirable about levels above roughly 240 mg/dl. Among young and middle-aged men such elevated cholesterol levels have been convincingly associated with a greater risk of heart attack. But this relationship cannot be found among the elderly, who experience a majority of the deaths from heart attack, or among women before menopause.

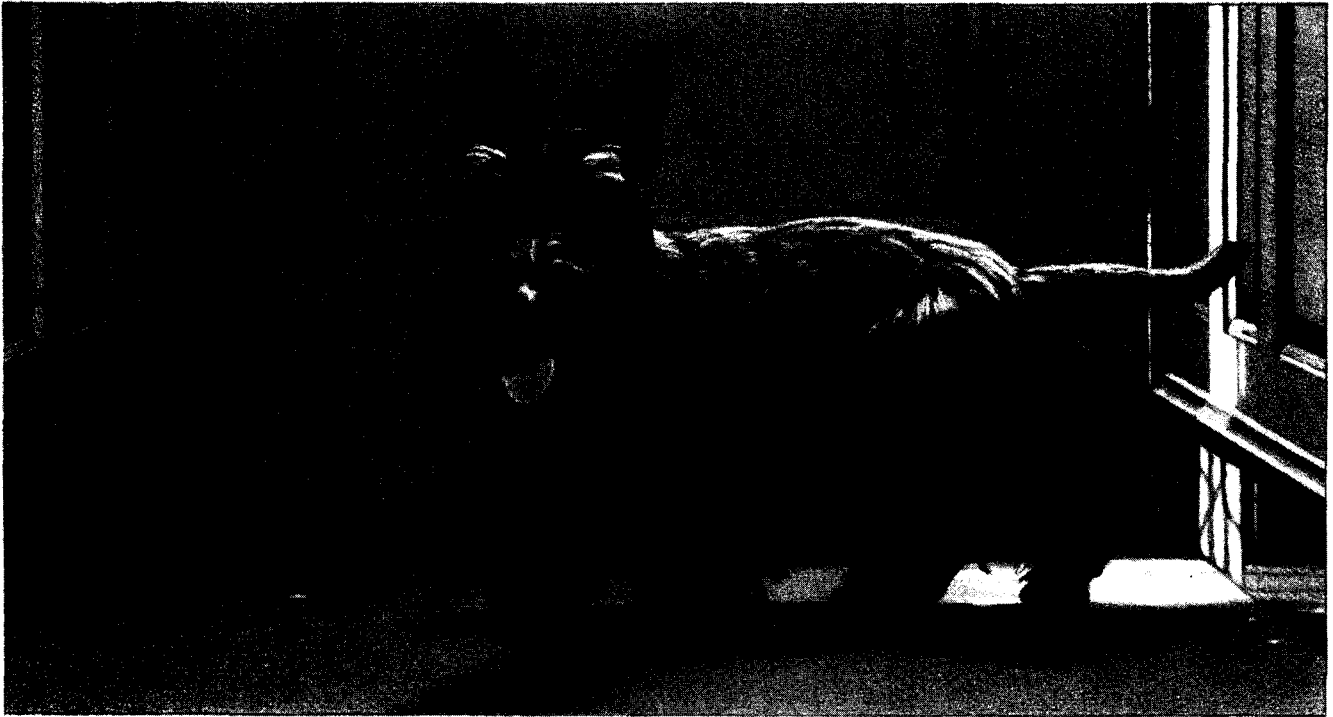
Because the important cholesterol compounds in the blood are synthesized inside the human body, the link between high blood-cholesterol levels and diet is tenuous and indirect. A diet rich in saturated fat, cholesterol, or calories does not necessarily lead to high blood-cholesterol levels (though it may be unhealthy for other reasons). Moderately severe dieting, even for years, does not produce a measurable reduction in the risk of dying from a heart attack, as MR. FIT, the government's biggest trial involving diet, convincingly demonstrated.

Individuals vary widely in diet response. Some can consume large amounts of cholesterol and saturated fat—or diet drastically—without producing any effect whatever on their blood-cholesterol levels. At the other extreme, about one in seven people may be highly sensitive to diet; dieting can either elevate or decrease the blood-cholesterol level of such a person by 10 percent or more.

Drugs lower blood-cholesterol levels more consistently and by larger amounts. But the drug the government now recommends—cholestyramine—produced disappointing results when it was tested. Daily treatment of nearly 2,000 men with severely elevated cholesterol for seven and a half years may have lowered the chances of a non-fatal heart attack from eight to seven percent. And while cholestyramine might have reduced the incidence of heart attacks, it did not improve life expectancy at all. The new drug lovastatin achieves even larger reductions in blood cholesterol, but neither its long-term safety nor its ability to prevent heart attacks has been tested.

Laboratory reports on cholesterol are seldom dependable, because of variation within individuals and inadequate quality control in clinical laboratories. The best way to get dependable information is through repeated cholesterol measurements using a laboratory machine known to be calibrated to a standardized national sample.

For most of the people most of the time, the advice of Eliot Corday may be helpful. "Cholesterol should be checked *only* if there are sound clinical indications," he wrote last February in the *Journal of the American College of Cardiology*. "A mixed diet low in calories and saturated fat should be recommended along with some physical exercise. . . . It is irresponsible to force the public into a costly cholesterol-reducing program without firm scientific evidence of the effectiveness of that intervention." □



THE PASSING OF THISTLE

BY PETER DAVISON

This is our first summer without a dog.
Fifteen years of disgraces in the night
(tattered screen doors, overturned garbage pails,
unexpected puddles on the guest-room bed,
and other such misdeeds) have ended at last.
She had a way of posing in the landscape,
arranging herself against a screen of trees,
upon a lawn or on an outdoor deck,
so as to bring out the hero in photographers
who could focus on the challenge of her darkness.
When on the move she carried less distinction:
a Scottie, long in the barrel, short of leg,
she trotted country roads as though she owned them,
so long as a glance behind her could confirm
the support of the authority that gave her hers.
Absent such authority, she panicked:
could be found, after a search, hysterically
galloping somewhere in the wrong direction
if we returned from shopping or the movies
through a region she had not known long enough to own.
On her home turf she brooked no trespassing,
at least by motorcycles, dogs, or horses,

though she'd roll over basely for human intruders.
The children who had grown up while she watched
were patient with her as old age declined
from sleepiness to blindness, deafness, and
incontinence. Before her last collapse
she lived her life entirely through the nose
and sense of touch. As the children watched her fade
they saw their childhoods disappearing with her
and by so much ceased a little to be children.

I who had shared, in my two-legged way,
in what I could grasp of her doggy memories,
knew we had lived through all the same affections,
felt the same losses, searched through an empty house
for someone who would never be returning,
brooded on sights and voices that had vanished.
Perhaps she had a way of understanding
our loss that she could never share with me,
but now our past belongs to me alone,
now that she's gone and no one else remembers
the weekends that we spent in the house together
letting each other in and out of doors.



HELL IN A VERY TALL PLACE

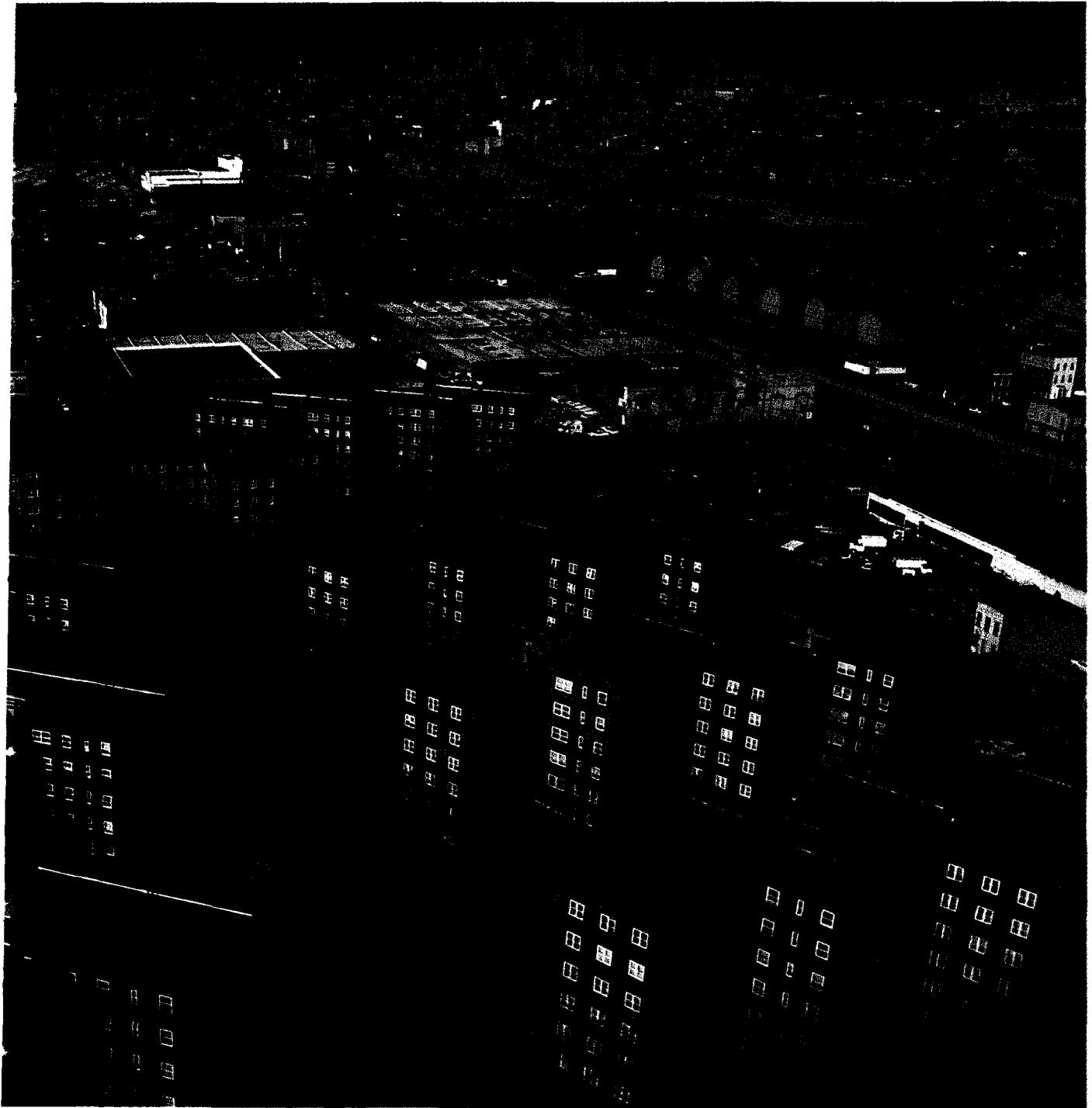
BY CAMILO JOSÉ VERGARA

For this survey of what is considered some of the best public housing in the country, the author, a documentary photographer, visited sixty housing complexes in poor neighborhoods of New York City and toured 140 separate buildings. He found many dedicated employees, much beleaguered decency, and much degradation



IT WAS MY NEED FOR HIGH PLACES FROM WHICH TO photograph the landscape of the ghetto that led me to approach the New York City Housing Authority (NYCHA) for permission to visit its projects. The roofs of the buildings offered excellent area views. The management was concerned enough about my safety to send an employee with me as I made my rounds; my guides were familiar with the buildings and could answer questions as we made our way to the roof. I had put my camera inside a shopping bag, as I had been told to do.

Under this arrangement I was not afraid to walk past the dealers and the addicts. A typical visit began in the waiting room of the management office, which might be presided over by the image of a skull on a yellow background bearing the words CRACK KILLS. Other signs warned against the sale of narcotics in public-housing buildings and also about accidents occurring in elevators, offered aid to victims of spouse abuse, and informed residents of cultural and social activities. In this neat room, a place of official normalcy, tenants make their rent payments, re-



quest repairs, and lodge complaints. But not even here can they escape graphic reminders of the plague in their midst, the drug epidemic shaping daily life.

Sometimes to get to the management office I had to make a long detour around the perimeter of the complex; I had been warned to stay clear of the center. In the South Bronx an administrator of the Andrew Jackson Houses told a caretaker who was to walk with me through the grounds, "Don't let him go through the projects with this [camera bag] or they'll kill him!" In Brownsville, the

Above, the Kingsborough Houses, in the Brownsville section of Brooklyn; above left, a door used for target practice

poorest section of Brooklyn, the supervisor of grounds loudly yelled "Move!" as I lingered to take notes in front of the northernmost tower, one of three twenty-two-story buildings of the Langston Hughes Houses. He later explained that two of his workers had been hit by bottles hurled from the upper floors of the buildings, and had required hospitalization.

The tallest buildings and those located on corners at the perimeter of the project grounds were usually the best suited to my purposes. My visits took place between 10:00 A.M. and 3:00 P.M., hours when drug dealing is at a low point.

Crack Supermarkets

ENTERING A PROJECT DURING THE DAY, ACCOMPANIED by a housing-authority employee, gives one a view of public housing at its best. I usually saw the buildings' public spaces soon after the caretaker had done the morning cleaning and at a time when school was in session and few children were around. My first impression was one of clean floors and quiet buildings.

But actually these massive buildings—typically they are more than twelve stories tall—are quite vulnerable. Nothing highlights this more clearly than the lack of secure front doors. Entrances almost always have broken locks, missing windowpanes, and vandalized intercoms. A key was necessary to come in by the main entrance in less than five percent of the buildings I visited, and I saw tenant patrols in only three percent. A young woman who was a caretaker in Brownsville reported, "Every time we put a new lock in, they break it. Everybody just comes and goes, comes and goes. They don't even live in the building."

"There is only one disease here: crack," says José Rodríguez, an assistant superintendent at the Mill Brook Houses, in the South Bronx. The tall, isolated, wide-open, and fully occupied buildings of public-housing complexes offer drug dealers a secure and accessible base of operations and a place to recruit staff and customers. Tenants fear to report them. In particular, the tree-lined inner courtyards of these projects, hidden from the streets, which were intended as urban oases for outdoor play, picnics, and socializing, now serve as open-air drug markets. The manager of the East River Houses, in East Harlem, characterizes the courtyard in her complex as "designed for escape." According to NYCHA workers I spoke with, many of the recent killings in such projects have taken place in the courtyards.

The most effective force for keeping drugs out of the public areas of buildings is organized groups of tenants who will call the police to arrest the dealers and their customers, and who are willing to testify in court against them. But organizing is becoming harder, as the most stable and active residents move out of the projects. The housing authority cannot afford twenty-four-hour security, and it lacks the funds to erect fences that might help control the flow of people in and out of the buildings.

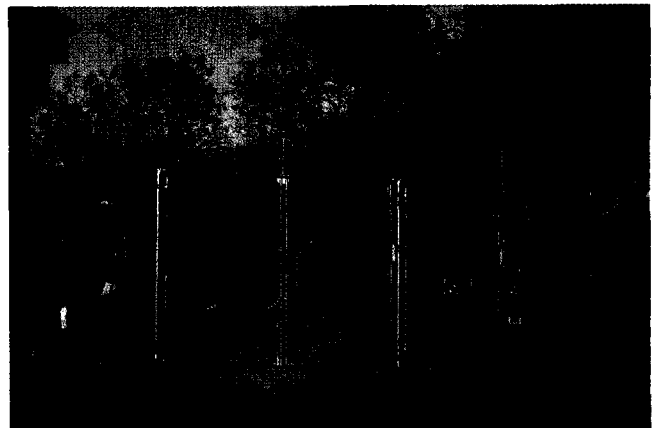
Maintenance personnel are perhaps the closest and most knowledgeable observers of the present crack epidemic. They know in detail the history, mechanics, and social costs of addiction in their work areas. When asked

why drugs are so popular, these people give answers that fit into three categories. Some lay the blame for addiction on the tenants' bleak prospects for the future. They argue that many turn to drugs for relief, particularly discouraged youths who are prone to depression. Others cite peer-group pressure: "Everybody is doing it." Youths use drugs first to be like their friends and later because they have become addicted. Still others bitterly blame the welfare system and the idleness it fosters: "People here don't have to strive. They clothe them, they feed them; this makes them lose their self-respect. You see grown-ups just hanging around the lobbies all day with nothing to do, except maybe going to the check-cashing place, always the same crowd, and they make fun of the people going to work. If they were busy doing something, they would not take drugs."

A popular opinion among maintenance personnel is that the federal government allows drugs to be sold openly in ghetto neighborhoods. I was repeatedly told that the U.S. Army and Navy have the power to stop the drug trade, and that since they do not use it, important people must be involved, making profits. Housing-authority workers complain that outsiders, by coming to the projects to buy, encourage drug dealing; they rightly feel that the police would not tolerate such blatant commerce in middle-class neighborhoods.

Many open lobbies of public-housing buildings have become crack supermarkets. A caretaker at the Seth Low Houses, in Brownsville, sadly pointed to the building he is responsible for and said, "This place is distinctive. You go to the lobby and there is nothing but junkies down there. You see a lot of crackheads moving back and forth." He drew attention to the broken windows and missing signs, saying that addicts sometimes steal the front doors of buildings to sell as scrap metal. At the Langston Hughes Houses a big hole in a pillar in the lobby of a building had been made in order to steal a bronze pump. With impunity, apparently in clear sight or within earshot of hundreds of residents, someone had worked for several hours destroying part of their lobby.

The ubiquitous drug addicts often die, or go to jail or



Housing-authority vehicles in "bird cages," out of harm's way

the hospital; their bony faces and starved bodies are soon replaced by others on street corners, in lobbies, behind buildings, and on stairways, their strange, dematerialized presence a constant reminder of death.

The Gauntlet

IN ENTRYWAYS I FOUND ELDERLY TENANTS PATIENTLY waiting for somebody they trusted to ride the elevator with them to their apartments. The elevators are slow and sometimes need carefully placed kicks and a helping hand to get started, and their walls are full of bumps, bearing witness to rough treatment. In the Martin Luther King, Jr., Houses, in Harlem, for example, one elevator had several bullet holes in it. A long, slow elevator ride in complete darkness is a dreaded experience associated with the worst housing projects; muggers, a maintenance man explained, "put the elevator lights out to rob you."

Reaching one's floor unharmed does not necessarily mean that one is safe: muggings occur frequently in the corridors. A maintenance man at the J. Weldon Johnson Houses, in East Harlem, explained that if tenants see addicts on their floor, they will often go back down and call the police. Some mothers even fear being robbed by their own drug-addicted children. To protect themselves, they request that their door locks be changed. Forced out of their homes, the teenagers move in with friends or share the public spaces of their building with other homeless people. At a project in Brooklyn a mother locked her four addicted children out of her top-floor apartment; to get in, her sons made a hole in the roof.

The stairway walls serve as bulletin boards. There, in the E. R. Moore Houses, in the South Bronx, "K.C." chose to announce that after eight years he was "back from jail, 1-25-89." On the fourteenth-floor landing of one of the buildings of the notorious Marcus Garvey Houses, in Brownsville, someone had written, "Bob and I was walking down the Ave. smoking on a blunt and we saw this crab. The crab walked-up and this is what she said: Give me five dollars and I buff your head." Another inscription, in the Bronxchester Houses, in the South Bronx, warned, "Crack is wack. You use crack today, tomorrow you be bumming. That's word experience talk." Yet another, in the Patterson Houses, in the South Bronx, consisted of this cryptic sentence: "misty blue is the place to be." Many of the steps and landings were strewn with empty crack vials, used condoms, and excrement.

While opening the top-floor doors leading to the roof, caretakers often spoke loudly, started singing, or banged the door, to warn of our coming. A maintenance man at the Polo Grounds Towers, in Harlem, went ahead of me, explaining, "I have to watch and see if somebody is smoking crack." The wisdom of this became apparent when I saw people up there sleeping, reading, sitting, and talking, with empty vials next to them.



A South Bronx high-rise project and its blighted neighbors

The roofs of projects showed many signs of drug activity, and there were often bullet holes in the vandalized metal doors and ventilation systems. At the Abraham Lincoln Houses, in Harlem, I saw a U.S. Army manual describing how to take apart and clean a high-powered rifle. At the Bushwick Houses, in Brooklyn, I found a door with a life-sized drawing of a deranged-looking man on it that had been used for target practice. A caretaker at the Albany Houses, in Brooklyn, explained to me that gun sellers take their clients to the tops of buildings to demonstrate their wares. If they can hit something in a nearby building, the guns fetch high prices.

The Narcotics Task Force of NYCHA recently began a campaign of subway advertising called "A Message for Drug Dealers," which warns, "Stay the hell *out* of public housing or we'll *nail* you." This "get tough" message is regarded as useless by NYCHA employees, who, in the midst of a raging crack epidemic, see these warnings and the attempts to implement them as ineffective. Residents themselves, fed up with the fear and violence imposed on them by the drug trade, have started a grassroots graffiti campaign warning junkies to stay out of the projects. For example, at the Mill Brook Houses someone has written on an elevator wall, "I hate all the crack-heads in this world. If I see one tonight, I am going to fuck them up, O.K. bitch."

"Brownsville, Not the Waldorf-Astoria"

NYCHA WORKERS WITH WHOM I SPOKE WERE ALMOST unanimous in the opinion that the crime in their projects was getting worse and their work was getting more difficult. For thirty-five years William Monroe, a housing-authority maintenance man, has lived and worked at the Marcy Houses, in the Bedford-Stuyvesant section of Brooklyn. He has seen many industries in the area move away and once-busy factories reduce their activities so much that the buildings seem deserted. "No work, no money, except from what comes from welfare, Social Security, and drugs," he says, and then asks, "How can you run a city

without money?" Today, he observes, even the army is not taking the youngsters most in need of work—the high school dropouts. He calls the neighborhood "dead man's city." He has seen the children he coached in baseball and took on field trips grow discouraged. Yet William Monroe is proud of having raised nine children in the Marcy Houses, not one of whom has become an addict. "It can be done," he says.

At the Samuel J. Tilden Houses, in Brooklyn, I overheard a caretaker complaining, "With all the crack and stuff that is going on, you only can do the best you can. This is Brownsville, not the Waldorf-Astoria." Several caretakers told me that they would not live in the complexes where they work even if they got a rent-free apartment. One said that he would rather take his chances in the Bowery than live there. Others complained that NYCHA was rehabilitating additional buildings in the neighborhood instead of concentrating on improving troubled projects. A caretaker at the Patterson Houses felt that the only solution would be to sell the apartments as co-ops.



At the management office, the Jefferson Houses, Harlem

In two exceptional projects, in Brooklyn, the Van Dyke Houses and the Marcy Houses, maintenance men told me that during the past year or so conditions had improved—fewer killings had occurred.

Nothing, perhaps, affects the morale of public-housing employees more than the growing violence that engulfs them. On several visits I was accompanied by victims of recent muggings, and I observed fear in their actions and in their words. One likable young caretaker, at the Mill Brook Houses, had been badly beaten during a robbery. He talked obsessively about his request for a transfer out of the South Bronx, a place of strangers, to Brooklyn, where he lives and where he feels that everybody knows him. Even though he and his family live in the notorious Walt Whitman Houses, he finds security in the fact that his building is near the police station and the project's management office. There the dealers and addicts know him, and when they see him outside a store or on a street corner, they greet him and never bother him. Things are different in the Bronx, he said. "People saw me on the

streets all bloodied up and they wouldn't help me. They don't know me here; I don't even want them to know me here."

Despite their pessimistic outlook, however, workers and officials made lists of things that needed to be done, picked up garbage left behind by careless residents, and addressed tenants politely. Not one expressed the desire to look for other work. As they passed by the crackheads and the pushers, the housing-authority employees did not look at them, perhaps to avoid a confrontation, or perhaps as a sign that the public areas of the buildings were out of their control.

A Monument to Moses

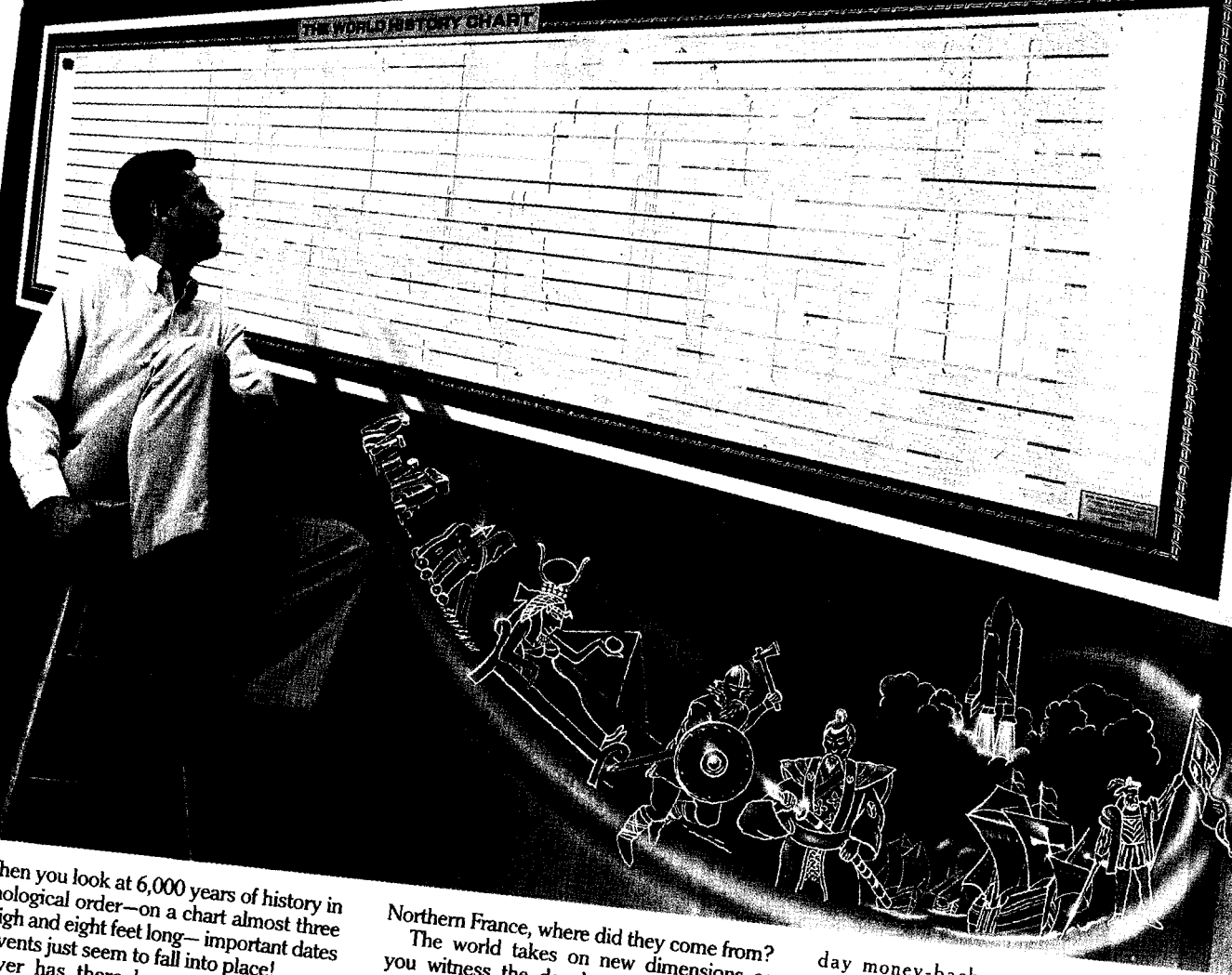
NEW YORK CITY'S PUBLIC HOUSING IS A PRECIOUS resource, especially in the present housing crisis. Yet the conditions in most projects are worsening. NYCHA buildings, maintenance people report, are only as good as the neighborhoods they are in. This year more than 33,000 families are sharing apartments without authorization, and thousands of people are sleeping on roofs, on stairways, in basements, and even in elevators. In this way public housing, at a great cost to itself, helps contain the flood of homelessness.

Beginning in the mid-1930s, the NYCHA projects were seen as a vast improvement over the crowded, unsanitary tenements and decrepit wooden houses they replaced. The projects boasted fireproof construction and sunny, ventilated apartments with hot running water. Life in them had, moreover, a provisional character: the complexes were designed to provide decent, sanitary housing for families until rising income and an increasing supply of private housing permitted them to move to more desirable dwellings. In 1989, however, life in public housing is vastly different from what it was expected to be. Projects have increasingly become permanent residences for the indigent.

Most of the developments in ghetto areas of the city are part of the legacy of Robert Moses, New York City's construction coordinator from 1946 to 1960. They reflect his preference for large complexes of more than a thousand units and for towers seven or more stories high. Arnold Vollmer, his longtime associate, recently told me that Moses had wanted "a project that would not be swamped, that could have an impact in the area." Vollmer said that Moses's view was "If you cannot do something that is really substantial, it is not worth doing." Moses's policies led to great concentrations of public housing. NYCHA became a model for the nation, with similar complexes arising from St. Louis to Boston.

Even after Moses's influence waned, NYCHA continued to build new complexes near or immediately adjacent to existing ones, resulting in clusters of as many as half a dozen housing projects. Today, twenty years after

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their completion, these modern agglomerations are surrounded by specially designed schools, post offices, libraries, police precinct headquarters, health facilities, and stores. But much of the city fabric around the complexes has been destroyed, and because, for the most part, the buildings contain no commercial facilities, the projects have become highly distinct urban environments, consisting of cores of housing ringed by businesses and services catering exclusively to the needs of the poor.

In the poorest and most crime-ridden and devastated areas of the city, NYCHA has more than 90,000 apartments, constituting more than 50 percent of its total stock. This is about twice as many apartments as the Chicago Housing Authority, the second-largest public-housing agency in the country, has altogether. And the poverty of the residents will continue to grow, since of the 180,000 families on the waiting list, 45 percent are welfare recipients.

Joseph Shuldiner, the general manager of NYCHA, would have been more at home in the Great Society than in an era of public stinginess toward the poor. Asking for real solutions to problems like homelessness, drug addiction, and crime, all of which have a devastating effect on public housing, he finds Washington unresponsive. It is "unfair to ask landlords to solve these problems," he says.

Shuldiner thinks that NYCHA, which already manages some 178,000 units, has no recourse in the present housing crisis but to extend itself. He continues to add to his stock rehabilitated buildings that are scattered and difficult to manage. And he would not consider evicting substantial numbers of tenants in order to improve the conditions in the projects. Shuldiner asks, "Do you know what effect it would have in the city if we evicted the 33,000 families now doubling up in our buildings? Where would they go? Our job is to provide housing for people, not to evict. We are not going to do it." But nothing is gained by adding new public-housing stock while allowing the existing dwellings to be destroyed by drugs.

The main source of funding for public housing, the federal government, today supports almost no new construction. The cuts in funds for services and community centers have worsened the health, education, employment, recreation, and safety problems faced by public-housing residents. The dwindling resources that Washington still provides are directed toward the poorest of the poor, thus accelerating a change in tenants from a mixed-income, mostly working population to dependent female-headed families, one of the most troubled of social groups. Working families, lacking subsidies of any kind and perceiving that the "market rate" rents they pay for their apartments in dangerous surroundings are already too high and are increasing, are moving to private housing in better neighborhoods.

Up on the Roof

TO REALLY GAUGE THE SOCIAL HORROR REPRESENTED by these projects, one must climb up for a view of the roof, where one sees blankets, mattresses, large pieces of cardboard, even tables and chairs. During the winter people prefer to sleep inside the building, or inside the shed that holds the elevator machinery, referred to without irony as the penthouse. People also live beneath the water tanks, where they arrange their belongings in a small space as if it were their private bedroom. The buildings being wide open, this practice has become accepted as inevitable. At the Bushwick Houses, for instance, a homeless man told the caretaker to stop placing new light bulbs on the stairway landing where he sleeps. "You put a light there and I will bust it. This is my house and I don't want a light there," he said.

Most homeless people taking shelter in public-housing buildings come at night and leave early in the morning, so as not to be found by the maintenance workers. But at the Patterson Houses a suddenly awakened man threatened me with a large knife, which he held by the blade as he sprang from a top-floor landing. After our quick retreat the caretaker with me commented, "We surprised him, and surprise brings out the devil in people." At the Jefferson Houses, in Manhattan, while accompanied by two supervisors, I encountered a sleeping man on the roof landing. One of the supervisors, while he was ordering the man out of the building, held a knife ready halfway out of his coat pocket. Weapons are increasingly among the tools of the public-housing trade; maintenance workers carry knives, heavy wrenches, golf clubs, and on pay day, I was told, even guns.

About half a dozen men live on each roof of the Polo Grounds public-housing complex—four thirty-story buildings. Located between the bluffs of Washington Heights and the Harlem River, in a magnificent natural setting, these giant buildings offer a breathtaking view of Manhattan, its pointed skyline, misty parks, and silvery bodies of water. From the tops of the buildings one can see the backs of hawks and seagulls as they fly below. Spanning the river are several magnificent bridges, and on highways along the perimeter of the project thousands of vehicles move rapidly by.

Contrasting with the panorama of the city are the sights that greet a manager who told me that he visits these roofs in the early morning: he sees a line of men defecating alongside a wall and others sleeping nearby. In this, the richest of cities in the richest of countries, in buildings of advanced late-twentieth-century technology, men who own nothing sleep under the open sky on a windswept roof three hundred feet above the ground. □



FIRST ENCOUNTERS

JOSEPH HAYDN AND LADY EMMA HAMILTON

BY THE SUMMER OF 1800 Napoleon had made travel about Europe precarious in the extreme. Sir William Hamilton, the seasoned British ambassador to Naples, his wife, Emma, and Lord Admiral Horatio Nelson, en route as a threesome from Sicily to England, found themselves deflected to Vienna. They were feeling their age and condition. The Lord Admiral had lost an arm, most of his upper teeth, and the use of one eye; Sir William was chronically ill; and the once classically beautiful Emma—painted by Romney, Lawrence, and Reynolds—had put on weight, only partially a result of her being (secretly) five months pregnant with Nelson's child. From Vienna they joined the Prince and Princess Esterházy at nearby Eisenstadt.

The chief attraction of Eisenstadt was, of course, that Haydn lived there. Kapellmeister under a succession of Esterházy's, he conducted his little orchestra, mothered his young musicians, and created his rich harmonies and buoyant melodies. He had also enjoyed

two highly satisfactory sojourns in England—the London symphonies attest to that. Now he welcomed these illustrious, if oddly matched, English guests, and sent to Vienna for the score of his cantata *Arianna a Naxos*, in which Emma had expressed particular interest.

Not since her early days in Naples, when the singing master came three times a day and household servants doubled as fiddlers, had Emma been so completely surrounded by music. Esterházy also provided a partridge shoot, fireworks, and a ball, but music reigned. At one concert, to Haydn's accompaniment, Emma sang the alto aria from *Arianna*; critical assessment of her voice varied, but the audience was ecstatic. Haydn rewarded her with the manuscripts of two of his English songs. Clearly, he was taken with her beauty; perhaps, too, her presence recalled a certain London romance still warm in his memory. If he knew of her dubious past, or suspected her unconventional present, he gave no sign.

—Nancy Caldwell Sorel

A Short Story



Hippies, Indians, Buffalo

by Wayne Johnson

THE LETTER ARRIVED on a cold, rainy Wednesday, a month to the day after the news that Toby had been killed somewhere south of Khe

Sanh. The thin blue envelope was traced with postage markings as if with veins, some of them obscured by handling and water damage, some of them razor sharp: strange lions and elephants and multi-headed people with angular limbs. Martin had come home early from the university to avoid the St. Paul rush-hour traffic, and, digging through the mail in the box outside the house, he came upon the letter as if upon a ghost.

In Toby's facetious way, the letter was addressed "*Center for Deviate Recruitment, Sir Martin D. Sorenson, Esq.*"

A shiver ran up Martin's legs, and he took the remainder of the mail, a sheaf of bills and advertisements, into the house with the letter. He set the bills and advertisements on the kitchen table—he was tempted to throw Toby's letter in with the rest—and then went into the living room, lowered himself onto the couch, and switched on the lamp. He turned the letter in his hands, watching the clock on the wall—his mother would be home soon—and finally, heart pounding, he edged his thumb-nail up the back and slipped out the thin sheet of paper.

"So, you little son of a bitch," his cousin had written, "*you did open this without telling M & D. Am I right?*"

The doorbell rang, and Martin, his hands clumsy, tried to fold the letter neatly. The doorbell rang again, and Martin squashed the whole mess flat on the coffee table and then shoved it into his pants pocket. At the door Martin's mother backed up against the bell, two over-stuffed bags of groceries in her arms. Martin opened the door and his mother nearly toppled over onto him.

"I'll get the rest," he said.

Coming up the drive with his first armload, he watched his mother through the kitchen windows. She took a deep breath and assailed the refrigerator, tossing the frozen things into the left compartment, the others into the right. When he had carried in the last two bags, he stood for a minute watching her. She spun around and smiled.

"So how was your day today?" she said.

"Whatever you do," Martin's cousin had written in his last letter from Vietnam, "don't let them talk you into coming over here"

OVER DINNER Martin's father got into it again. The spaghetti sauce had too much sage in it, and the garlic was—too much. Martin shoved an-

other mouthful in, aiding and abetting his mother.

"I like garlic," he said.

But there *was* too much garlic—and it was garlic salt that Martin's mother had used, so the spaghetti was too salty as well—and Martin was determined just to get it down and get away from the table. He could feel something brewing, something bad.

"Did you hear about the Communists?" Martin's father said.

Martin shrugged his shoulders. He didn't want to talk about it. Martin's father was in private practice, and all this Kennedy talk about socialized medicine set him off. He worked hard—too hard, Martin thought—and more often than not he was irritable and argumentative. Now it appeared that he was going to give yet another of his angry lectures.

"Don't you read the paper?" he said.

"Some," Martin said.

"You've got to keep up with what's going on."

Martin looked up from his plate. His father's forehead glistened dully. His father reached out and gripped Martin's forearm, manfully. Martin didn't like it. Martin's father had never had a father, and he was forever trying to be one, something he wasn't very good at.

"It's Cambodia now," he said.

Martin tried to pull his arm out from under his father's hand. His mother, at the other end of the table, ate slowly, and his sister, across from him, carefully picked at her bread.

"Did you hear?" the doctor said. "They've moved into Cambodia now. This whole thing might escalate into something big."

Martin bent his head over his plate.

He felt his father's eyes boring into him. He felt the weight of it, of the man's money, his anger, his certainty.

"Stop staring at him," his sister, Kristen, said.

AT THE SINK, THE RADIO ON, MARTIN AND KRISTEN washed dishes. The light in the bedroom upstairs was on, and Martin felt relieved. His father would be reading the paper and his mother would be buried in some inspirational book. *Make Love Your Aim* had been the last one.

"He's just tired," Kristen said.

Martin pulled a fork from the water and cleaned between the tines. He didn't know what to say, and what he had read in Toby's letter bounced around in his head.

"So, you little son of a bitch, you did open this without telling M & D. Am I right?"

"You okay, Marty?"

Martin slipped another plate into the water, scrubbing and then rinsing it. He handed the plate to Kristen. He wanted to say something to her, but that wasn't the way. Everyone was holding everything in and had always held it in. He thought of his mystery grandfather, the alcoholic, and the mystery uncle, who was Martin didn't know what, though he sensed the uncle was the source of some family embarrassment. He thought about the disappointment of what some people had told him would be the best years of his life. How could they get worse? And now this thing. At the dinner table Martin had lied. He *had* heard about the Communists in Cambodia. He had read all he could about it. He had heard talk of a big offensive, possibly a full-force offensive to the east, and lots of troops. He had watched Huntley and Brinkley, and Cronkite, and had seen Toby's snapshots, and had read his letters, over and over. For months Toby had been sending Martin letters, most of them facetious, and Martin couldn't make much sense of them. They were composed of cryptic lyrics from songs he barely knew ("Johnny's in the basement, mixing up the medicine/Twenty years of schooling and they put you on the day shift/Watch out Kid!") and weird exhortations: "Beware of the Stobor!" Martin had saved all the letters in a shoe box under his bed, though none of what was in them had seemed real—the heat and the mud and the death—

until they had gotten word about Toby and how he had died.

Martin handed a dish to Kristen. "You want to wash and I'll dry for a while?" he said.

They traded places. Kristen churned away in the water. "Hey," she said, bumping Martin with her elbow.

IN HIS BASEMENT ROOM HE SAT ON HIS BED, A CALCULUS text open beside him. He leafed through a copy of *Goldfinger*. In the past month he had read all of Fleming's books, even the more obscure of them,

except for this one. They were pure escape, right up there with pot, a real slug in the arm. Now he couldn't even make it through the first page for thinking about Toby's letter. He wondered what was in it and why it hadn't come earlier, and when Martin heard his father's heavy tread down the stairs, he tossed *Goldfinger* under the bed and opened his calculus text.

Martin's father smiled bitterly in the doorway. He was holding a glass.

"You're not fooling anyone," he said.

Martin felt his face grow hot.

"The only person you're fooling is yourself," Martin's father said.

Martin scratched at the open book with his pencil, trying to think of some way out, but nothing came to him. He had never found a way to fight this man, and the small victories he had

won over him in the past year he saw now as nothing more than self-inflicted injuries. He had failed three classes, had gotten into some small trouble with the police, and had refused to have his hair cut. A counselor had straightened him out on the classes ("You won't get into the better graduate schools if you keep this up"), and the mess with the police—a drunken-driving charge and a night in jail—had convinced him of the consequences of screwing up for real. But the hair stayed. Somehow the hair was what got to his father. It was a simple, tangible thing—he had grown it long, and had made a braid of it, like the Indians up at the lodge, where he worked sum-



mers—and, as silly as it seemed, the hair had come to represent something, something even Martin didn't quite understand.

Martin turned to face the window. His father stood in the doorway, shifting the glass of soda around and around in his hands.

"Marty," he finally said, "why don't you tell me what's wrong?"

Martin drew his breath in. He picked at a hole in his jeans. A car rumbled by outside. They hadn't talked for so long that there was no place to start.

UPSTAIRS, KRISTEN'S DOOR SHUT, AND THEN the house was silent. Martin waited ten long minutes and then carefully tugged the letter from his pants pocket. He laid it on his calculus book and smoothed out the creases with his palm.

"So, you little son of a bitch, you did open this without telling M & D. Am I right?"

Martin shook his head. He was afraid to read the letter. He held it under the lamp, and the blue scrawl seemed to rise up off the page.

December 3, 1969

Dear Marty,

I'm gonna make this short, and I hope to God you get this, only I don't know. We've been held down under mortar fire the last day and a half and I'm damn near deaf. Yesterday that kid Boehmer (remember him from grade school? The guy with the buck teeth?) got gutshot and was screaming like you wouldn't believe. We were pretty close. He said he'd take this stateside (guess how and where? I'll give you a clue—it's a place where the sun don't shine), only he didn't pull through, after all. But this is it, Marty, you smart and screwed-up little bastard.

Here the longhand ended. The remainder was printed, in large block letters.

Whatever you do, don't let them talk you into coming over here. All we're doing is dying like pigs out in this fucking muck. Don't listen to grandpa, and don't listen to your old man. Just keep telling yourself, it's not something worth dying over.

Don't show this to anyone. You were always an okay guy, Marty. I'd say "pray for me" if I believed in that, but I don't, so I'm saying "wish me luck" instead.

Yours,
Tobe

Martin read the letter again. Then again. He read the letter ten times before he turned his light off, and after what seemed like an endless time lying in the dark, he turned on the light and read it five times more. He finally fell asleep, and in the morning he woke with the light on, the letter still in his hand.

"Marty," his father called down the stairs.

Martin rammed the letter behind the bed. He felt as though he had been caught doing something shameful, and he tried to make his body look sleepy.

He heard that heavy tread on the stairs.

"Marty," Martin's father said. Then, shaking Martin by the shoulder, he said, "Come on up. I made breakfast for you."

THANKSGIVING DAY, 1970.

THE gravy tureen made its way around the table again. Martin's grandfather, Spencer, was corralling his peas against a mound of mashed potatoes. "I'll have some of that," he said, taking the tureen.

Martin watched him pour the gravy. Though Spencer ate with his usual gusto, Martin's cousins, Jane and Lucy and Todd, at the smaller table with Kristen, held back.

Nearly a year had passed since Toby's death, and this Thanksgiving was the last of the firsts—the first Christmas without Toby, the first Easter, and so on. Now that Toby would never come back, these times together were different, an adjustment, and this was the last of them.

HAWKS IN A BITTER BLIZZARD

Hard work alone can't drive blue northers off. Nine blizzards out of ten blow out by Amarillo, nothing this far south

but flakes and a breeze to make a man in shirt sleeves shiver. Every few years, Canada roars down, fast-freezing cattle

in the fields, dogs caught between barns, hawks baffled on fence posts. Stubborn, hawks refuse to hunker down in burrows

with drowsy rattlesnakes and rabbits. They drown in their own breath-bubbles, crystal as the sheen on barbed wires

freezing in the rain. Wood carvers driving by, grinding on chains down icy roads, see them at dawn and envy, tempted

to haul the fence posts home and burn them, nothing in oak or juniper they carve ever as wild and staring as those eyes.

—Walter McDonald

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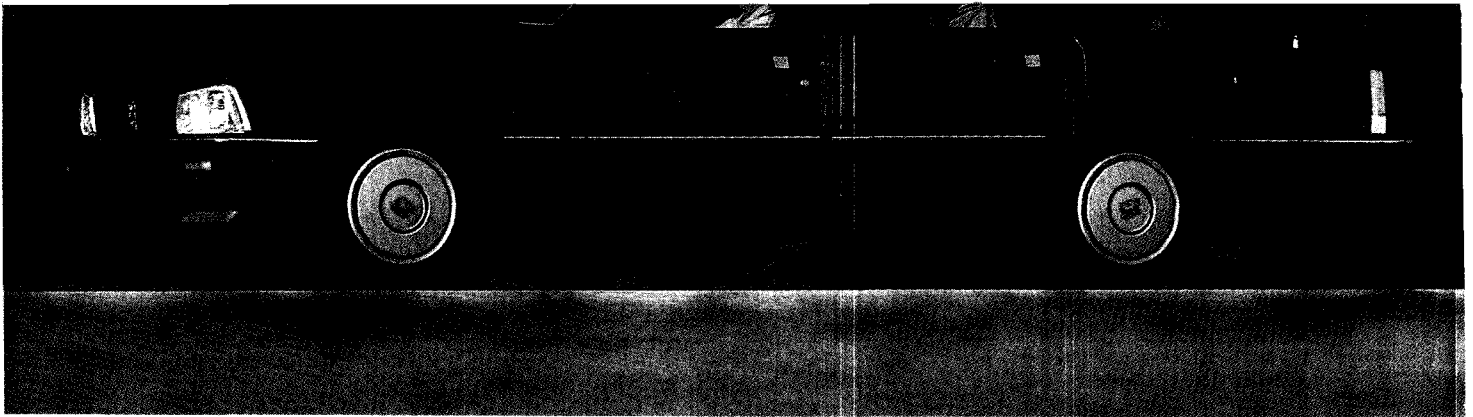
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Martin looked from face to face around the table. They were all carefully talking around anything having to do with what had happened to Toby—his aunt red-eyed, his uncle poking at his plate, his mother smiling nervously, his father and grandfather chewing forcefully.

Martin wiped his mouth with a napkin and excused himself.

In the bathroom he sat on the toilet. He held his hand over his mouth. A bitter laughter bubbled up in him.

"And, Lord, let us remember our Toby today," Spencer had prayed, "that he did not die in vain but that through such sacrifice our lives are made possible."

Someone knocked on the door.

"Marty, you coming out?" Kristen said.

"Just a minute." Martin flushed the toilet for effect and ran the tap. He opened the door, and Kristen smiled at him.

"Come sit at the other table with me," she said.

Martin's father and uncle were talking politics again.

"At least he wasn't one of those goddamned draft dodgers," Spencer said.

Lucy and Jane and Kristen were talking about orchestras. They talked loudly, filling in the gaps. Todd was listening to the other table, and made no effort to disguise his interest. Martin liked that about Todd, and angled his chair to see better.

"I'm proud of Toby," Spencer said.

Martin's father shook his head. "I'm not saying we like the idea, but we can't just let them go wherever they want. They want world control, after all. You know that"—Martin's father gestured with his fork. "You were in right after I was. Remember how it was in Korea?"

Martin's uncle slowly pushed his chair back from the table. He had an especially long face, and it went through a transformation now, his eyes narrowing as he turned to face Martin's father.

"We'll see what you have to say when Marty gets sent over there," he said.

Martin's mother set a pie on the table.

"Dessert's here," she said.

THE LETTER FROM "UNCLE SUGAR," AS TOBY had called the armed services, came in December. It came on a Monday, along with snow, one of the first really big snows of the season. Martin opened the letter in the kitchen, with a knife. He was to report for training at Fort Hood, Texas, on May 16.

Martin sat at the table, waiting for the news to sink in.

He tried to imagine himself with thousands of other bald-headed kids, running around in green uniforms, practicing killing people, and then, if worse came to worst, actually going off somewhere and doing it. He'd killed plenty of things—a deer every fall for the past six seasons, ducks, pheasants—and he was a crack shot, a

natural with a gun. But up at the lodge, with Bear and Osada and Buck, there was a certain reverence in the killing, thanks given, and a reason. This was senseless and evil and, as Toby had put it, *political*. Martin didn't want to be involved in these political things, and he didn't really see why he had to be. No one was threatening his country. Any idiot could see that. In some ways the point of the war had been lost since that business with Lieutenant Calley. So what was going on?

Martin stood and opened the shutters.

The day was so bright, so *white*. The elm in the front yard was covered with snow. Above the trees snow tumbled down, a boiling curtain of white. A plane cut low across the horizon and disappeared into the clouds. Something in the letter caught Martin's attention, and he held it up in the light.

May 16, that was it.

And then the thought struck him, like a fist in the stomach, that May 16 was also opening day on walleyes, and if not for this mess, he would have taken the train up to Wheeler's Point, where he would have caught the launch over to Big Island.

IN FEBRUARY MARTIN BOUGHT A CAR FROM A DEALER on Lake Street. He didn't know why he had to have the car, but he knew, somehow, that it would be important. The car was an old Nash, one that looked a bit like a bathtub turned upside down. For months Martin had joked with two of his friends about it.

"The World's Ugliest Car," he had said, pointing it out.

It had a grille like that on the bottom of a refrigerator, and bumper guards that looked like chrome tadpoles.

"We ought to paint LOVE BANDIT on the side for you," his friend Tony said the afternoon Martin bought it.

For months after, when Martin went out to look at the car mornings he'd find new slogans spray-painted on the fenders and hood. This had a sense of rightness about it. In some slow way Martin felt himself turning, but in which direction he wasn't sure. In a way he felt as if he were destroying himself, but he also felt good. He had decided he would give as little of himself as possible to things he didn't believe in, and the war was one of these things. It wasn't his war. It wasn't even his country he would be fighting for—it was some *thing*, and Martin was damn sure it wasn't freedom. So he drove around St. Paul in the Nash, feeling out this new direction, and feeling that things could not possibly be other than they were.

HOW THINGS WERE CAME TO HIM IN BITS AND pieces, and angered and saddened him. Everywhere he saw people divided against each other, and at home it was no different. Mowing his grandfather's lawn one hot April afternoon, Martin stopped to cool off. He lifted the braid off the back of

his neck, draping it over the bench. Spencer shook the newspaper he was reading and set it on his knees.

"You look like a *goddamn hippie*," he said, his voice filled with disgust. "Or worse yet, a *goddamn Indian*."

Martin scratched his forehead. He fought an impulse to say what he was feeling, for he was afraid he might say things he could never take back.

"What's happened to you?" Spencer said.

Martin stood. The words caught in his throat.

"Nothing," he said.

He dragged the mower around to the front yard and attacked the hill bordering the street. The mower shuddered through the high grass, snapping over spring deadfall. Martin felt hurt and angry. What had Spence meant? That he was like the Ojibway in the housing project, people who lived as if in a war zone? Is that what he had meant? That he was defeated and pitiful? If that was it, then Spence was *wrong*. For if Martin had learned anything from working with the Ojibway up north, it was that they had not been defeated, *couldn't* be defeated, and that was why they had been destroyed. He remembered something Osada had said.

They had been out in the boat, duck hunting, and a plane had flown low over the lake.

"Boy, what I'd give to have one of those," Martin said.

Osada looked at him, cocked his head to one side and then the other, as if he were measuring him up.

"What would you give?" he said.

Martin felt himself caught, and tried to come up with an answer, one that was not a lie.

"I guess I don't know," he said finally.

Osada laughed to himself and then quieted.

"Listen to me," he had said. "The way against the spirit is the evil way, is the way of destruction."

Lifting the mower into the trunk of the Nash, Martin glanced over the hill into the yard. The bench, newly painted, glistened a bright maroon, the grass as flat as a crew cut around it. Martin opened the driver's door and got in. He sat for a few minutes in the heat, fanning his

shirt over his chest. Out of the corner of his eye he could see Spence in the front window. When a big bead of sweat ran down Martin's forehead and dropped onto his hand, he turned the key in the ignition and started the car. This time he wouldn't back down.

THE CAR WAS NOT POPULAR.

When Martin asked Kristen what she thought about the car, she hesitated, a studious look on her face, and said, "I like the steering wheel. . . . It looks like pearls." Martin's mother offered to sew him some seat covers for it. Martin's father's friends parked in the street so as not to put their Lincolns or Cadillacs beside it. Martin's father hated the car.

"I want you to get that hulk out of the driveway," he had said the morning after the first spray-painting had been done.

Now Martin stood beside his father, surveying the damage of this past night's raid. Rivulets of white paint dripped from the letters on the doors.

THE LONE RANGER the letters read, and on the trunk was ZOOKS!

"I want it out of the driveway," Martin's father said. "I mean it."

Martin shoved his hands into his pockets. "I don't think it's so—"

"Oh, come off it. It looks like hell."

Martin could see this was becoming something much bigger than a ruined

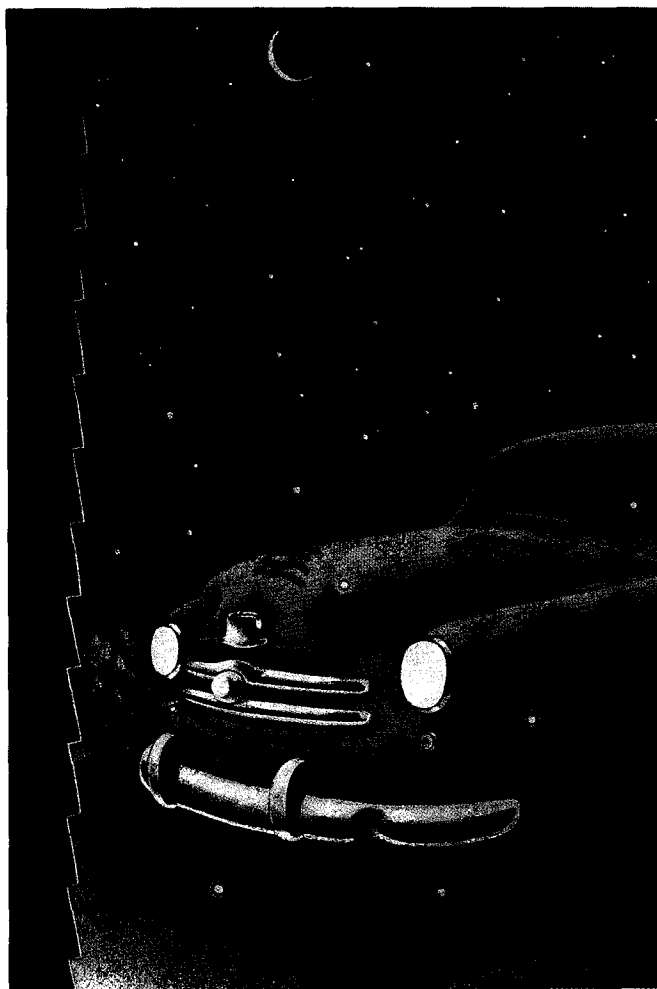
two-hundred-dollar car, and he tried to ease away. His father caught him by the arm.

"Just what do you think you're trying to do?" Martin's father said.

Martin shrugged.

"I want you to tell me—say it straight—what the hell do you think you're doing with this car?"

Martin tugged at his arm, and his father gripped it tighter. Martin got a boiling sensation in his chest, and then he imagined himself banging his father's head against the car until his head split open, and he felt himself torn with grief.



"Don't worry," Martin said.

"What?"

"I said, don't worry."

"What do you mean, 'Don't—'?"

"Goddamn it!" Martin said. "It doesn't make a goddamn bit of difference, because three goddamn weeks from now I'll be in goddamn Texas! You hear that?" he said, jerking his arm free. "Tex-ass!"

SUNDAY NIGHT THE WEEK BEFORE MARTIN WAS TO take the train down to Fort Hood, the house was quiet. Martin's father rummaged around in the basement for his old duffel bag.

"You'll need this," he said, setting the bag at the end of Martin's bed.

Martin had packed most of his belongings away, had cleaned out his closet, and had piled the clothes he was planning to take on the bed. He was amused, in a grim way, about the concern over these small things now. He knew that none of it mattered. In his mind, the army would strip him of everything, and he imagined, with bitter humor, showing up in a Bozo the Clown outfit, complete with the red nose, ruffled neck ring, and oversized shoes.

"Hi! I'm Bozo," he would say. "And you must be Commander Bozo . . ."

Martin's mother brought towels from the dryer.

She laid the towels on the bed and wrung her hands. His mother was a birdlike woman, funny at times, sad at others.

"Here's some towels for you," Martin's father said.

Martin smiled at his mother.

"Thanks," he said.

Kristen leaned against the door jamb.

Martin looked from his sister to his mother to his father.

"I got to get some air," he said.

HOURS LATER, HIS FEET SORE AND HIS LEGS tired from circling the chain of lakes in town, Martin turned the corner of the service road home and went up the drive. The house was dark, and he was tired, and he didn't see his father standing with his back braced against the car.

"Hey," his father said.

It startled Martin, and he could think of nothing to say. They stood like that, staring up into the low-hanging clouds. The night sounds grew in volume and then faded away, fireflies blinking across the lawn. The fireflies got to Martin. He remembered catching them in a jar, him and his father. They had run across the yard, nabbing them off grass stems, two jars, a contest with no winner, a *fun* game, really.

Thinking about the fireflies, Martin felt like saying he

was sorry but knew he couldn't. There was always more to remember.

"A chemical process makes them light up," Martin's father had explained.

Martin had looked into the jars, curious.

"You aren't listening," his father said.

"Yes, I am," he said.

Martin's father stood. "No, you're not," he said.

He took the jar from Martin, and with one heartrending swoop of his arms he tossed both jars up into the air, where they turned end over end until they shattered on the driveway.

"I'm sick and tired of this," his father had said, and Martin had tried not to cry.

And now, here they were again.

Martin could sense that his father was trying to say something. But he just stood there, a big, mute presence in the dark, but dangerous, like a buffalo. Standing like this, against the car in the middle of the night, seemed almost his way of saying he was sorry. Martin slapped a mosquito. Now that he had stopped moving, the bugs were biting.

"Can't stand out here all night," Martin said.

Martin's father rubbed his forearms.

If he were to say he was sorry now, Martin thought, I would let it all go, this night, right now.

Martin's father shuffled, ran his hand over his thinning hair. He picked at a scab of paint on the Nash, and as he pulled up on it, a whole strip of paint came away from the rusty metal underneath. Martin looked up into the dark sky. A jet lumbered in from the west, its lights cutting bright holes in the dark.

"What are you going to do with the car?" Martin's father said.

"What?" Martin asked.

"The car—what are you going to do with the car?"

Martin turned to face his father; he had been hoping for something else, but this is what it had come to.

"The car?"

"Yes, the car," his father said.

MARTIN SLIPPED OUT OF BED. IN THE DARK HE dressed in his jeans and moccasins and denim jacket, shouldered the duffel bag, and without turning to look at the nearly bare room, climbed the stairs to the front door. He was turning the knob when he remembered that he had forgotten something. He set the duffel bag down and went into the bathroom, to the cabinet under the sink. He pulled Toby's last letter and a small blue envelope from behind the sink, and stuffed them in his breast pocket. He hadn't realized before why he had kept his savings out of the bank, but now he knew. The daydreams he had had for months, had dismissed as fantasy, now took on real proportions.

OUT ON HIGHWAY 35 MARTIN GEARED THE NASH up, and the old six crooned. Martin hung his arm out the window, singing to himself. He tried not to think about what he was doing, and he turned on the radio. He had gotten the radio a few weeks before, and now he turned it up, pretending to enjoy the music. What the hell, he could do a lot of things, he thought. A highway patrol car drove by and then spun around, lights flashing.

On the side of the road the officer held a flashlight beam in Martin's eyes.

"What are you doing out at this time of night?" the officer said, looking down at Martin's license.

"Going fishing," Martin said.

"Let's see your gear."

Martin got out of the car. He reached for the trunk key in his pocket.

"Hold it," the officer said, the gun out of the holster and ready now.

AROUND FOUR MARTIN CLEARED THE LAST OF the plains. To the north the lights of Duluth held off the dark waters of Lake Superior. A huge trucking complex sat off the highway, a diesel stop, and Martin drove the Nash through the labyrinth of roads to the squat brown restaurant in the middle. He took a booth on the far end, away from the door and the counter, where two heavyset truckers sniggered.

"What do you want?" the waitress said.

"A cup of coffee."

The waitress gave Martin a sour face. Behind her the two truckers laughed.

"You've got to get something to eat with it," the waitress said, holding a menu out. "We can't have people just drinking the hell out of our coffee for nothing."

Martin took the menu.

"What do you have?"

"You can read, can't you?" the waitress said, bracing her hand on her hip.

Martin could see now that the truckers had put her up to it, but she was enjoying it as much as they were. The two truckers nudged each other and laughed. The bigger stood and strode to the back, pushing through a red door. Martin patted his breast pocket.

"Two eggs," he said, "hash browns, biscuits, and lots of coffee."

The waitress went around to the kitchen, and the trucker who was still at the counter caught her arm as she went by.

"Is it a boy or a girl?" he said.

Martin tried to ignore them. He traced the marking in the table top, thinking about driving north now, and the gravity of what he was doing. He hadn't thought about it,

he had just done what he thought was right. He had believed Toby, but he hadn't thought about what it would be like *not* to go. All he had thought about was what *going* would mean.

The food came and the waitress slapped down the check.

"Anything else?"

"No," he said, poking at the food with his fork.

The energy that had driven him this far, a wiry, unthinking energy, had gone away, and now he felt sick. He wasn't so sure about anything now, and he felt as though he were poised between two starting points all over again, the Nash outside, waiting, this food on the table in front of him, and the big man out of the toilet and laughing with his friend.

He thought of going out to the Nash and getting his .30-06.

"Like deer hunting, Fat Boy?" he would say.

But beneath the anger was something else, and it got all tangled up trying to come out. Martin belted down the hot coffee, trying not to think about it. What was he doing anyway? Who was he fooling? The big trucker gave out a belly laugh, and Martin stood and went into the men's. On the wall was a large vending machine with pictures of naked women spread-legged across it, their mouths big O's of pleasure. Martin stepped up to a urinal. He could hear them laughing out in the restaurant. He stared into the wall, and something in it came clear. Someone had cut through the wallpaper, in big, jagged strokes, HIPPIES ARE LIVING PROOF THAT INDIANS FUCKED BUFFALO.

It stuck in his head like a hot poker, and then he was striding up past his booth to the car, all of it bursting out of him now. He didn't trust himself to drive this way, and he leaned against the fender, watching the waitress. She went over to the table, and when she saw that Martin hadn't paid his tab, she marched to the front door and out, the truckers behind her.

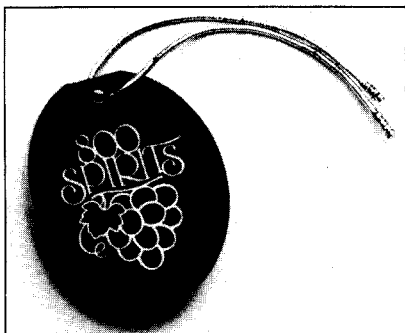
Martin got into the Nash and started it.

"You son of a bitch!" the waitress yelled, pointing.

The big man took off across the gravel drive and Martin swung the Nash around, headed for the waitress. She blinked twice and then saw he meant murder, her face a brilliant moon of fear, and in that moment Martin saw himself, what he had been running from, and he veered off to the right, and burst up the road onto the highway, and with the blood pounding in his head, and the highway howling under him, he went a long time, the Nash swaying from side to side, barreling along as close to death as it would take him, and not until he passed a road sign and slowed down did he admit to himself that it wasn't an accident, he hadn't taken the wrong entrance onto the highway, and the lights of Duluth were now far away and to the south. □

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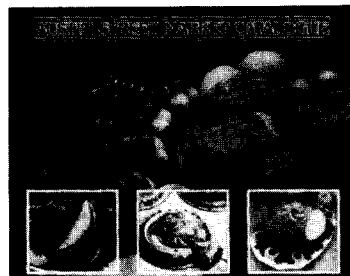


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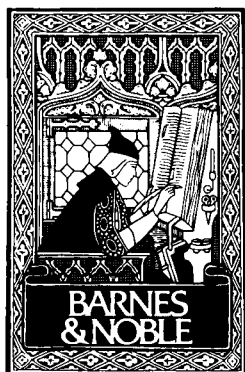
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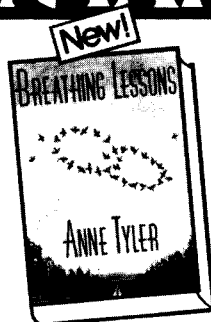


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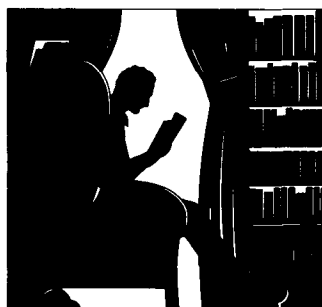
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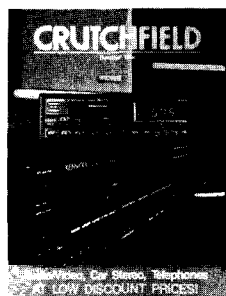
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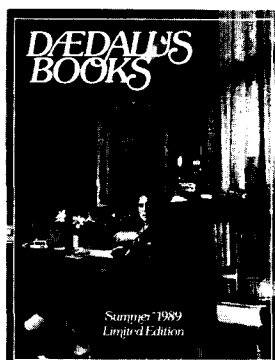
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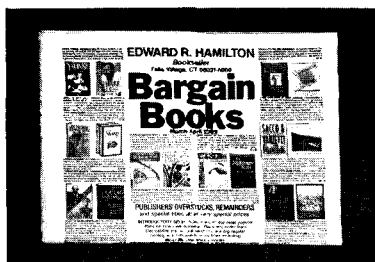
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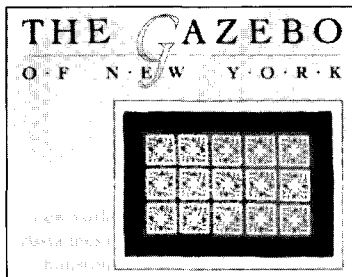
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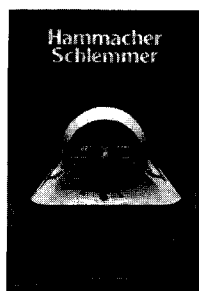
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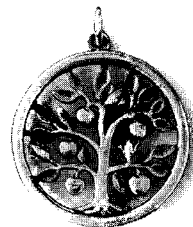


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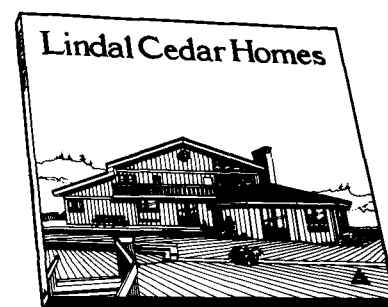


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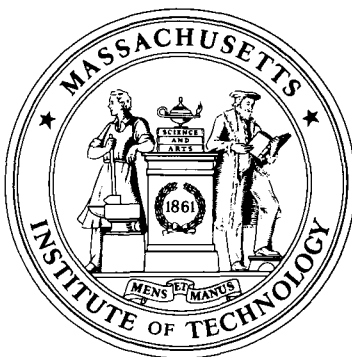


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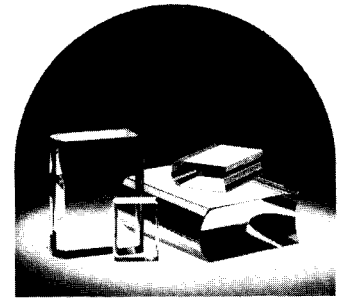
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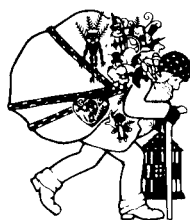


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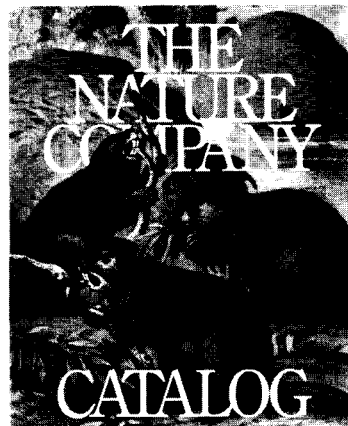
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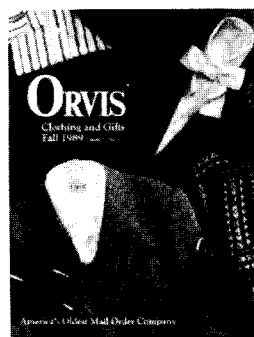
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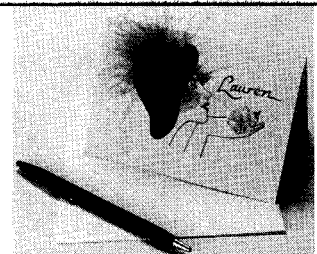
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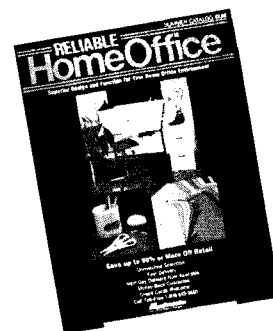
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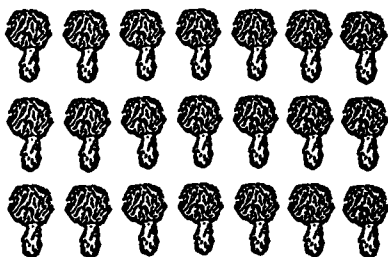
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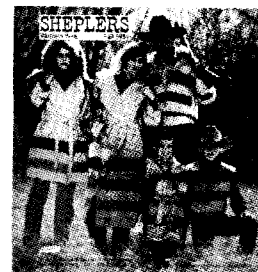


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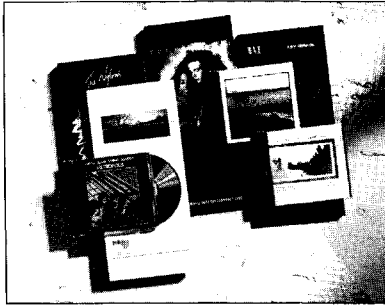


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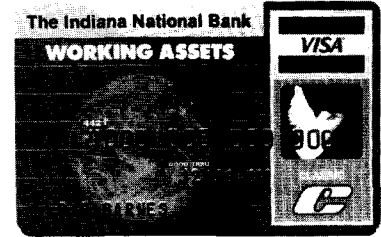
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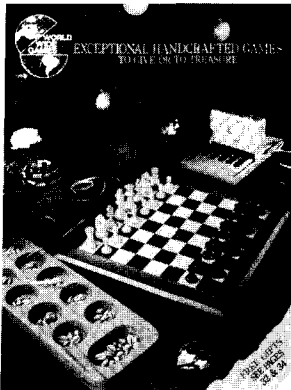


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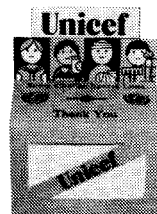
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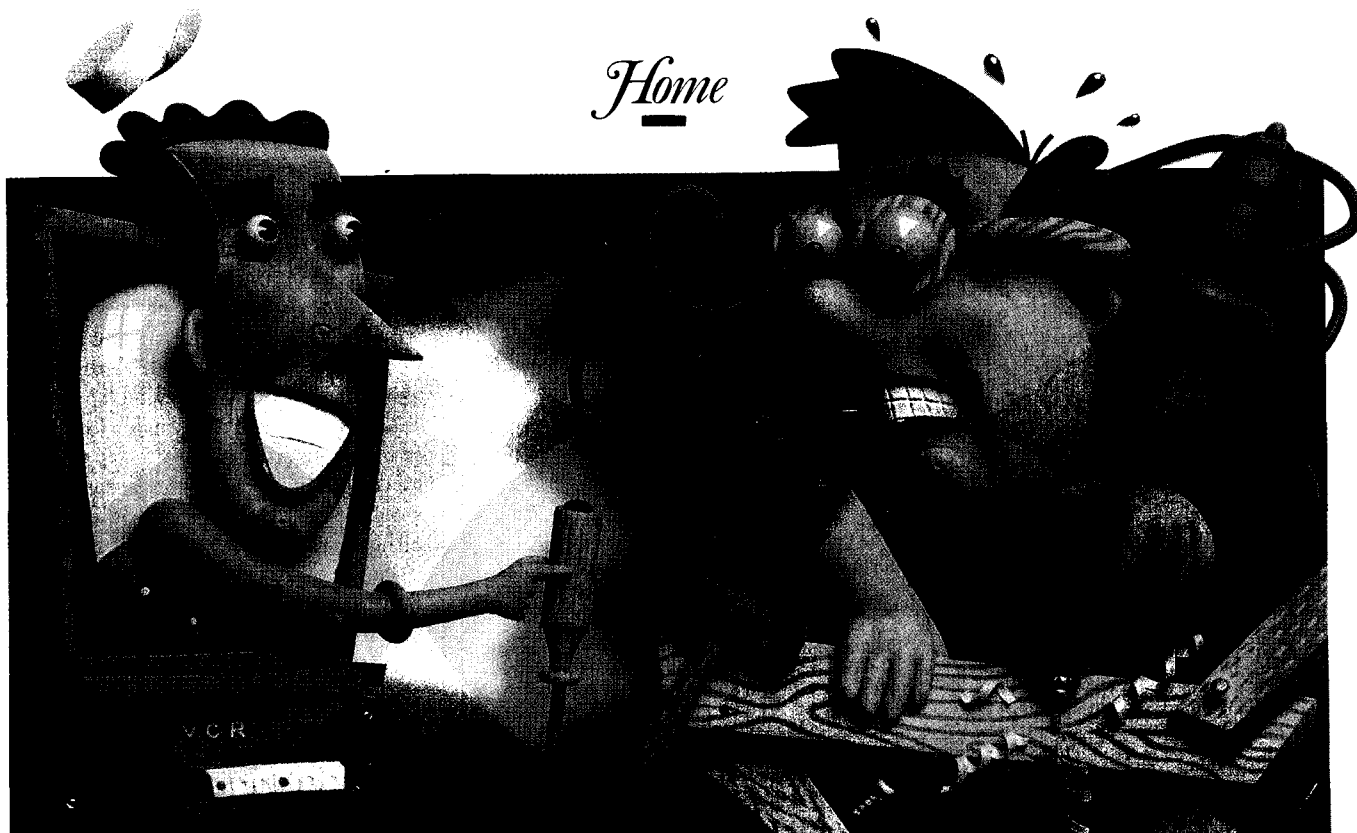
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Do-It-Yourself Videotapes

Some of them are even helpful

by David Owen

I LOVE BUYING expensive power tools and using them to wreck various parts of my house. I used to be afraid of tackling ambitious home-improvement projects, but now there's almost nothing I won't try. Not long ago I used a tool called a reciprocating saw to cut a big hole in a wall between two rooms. What will I think of next? This is what my wife wants to know.

One problem with being an amateur is that the knowledge one gains in the course of doing something is usually the knowledge one ought to have had before trying it in the first place. I now have a pretty good idea of how to cut a big hole in a wall between two rooms. But when will I get a chance to use my experience? The hole is already in the wall. Filling it up just to cut it properly would be absurd. I could cut a big hole in another wall, but I can't think of one that isn't better off as it is.

Except for what I've learned by trial

and error, most of what I know about doing things to my house I've picked up either by reading books or by watching people who know what they're doing. Unfortunately, even the best books leave out crucial steps, such as the ones that prevent water from spraying all over the ceiling. And people who know what they're doing usually have to be hired and rarely like to be pestered with idiotic questions. The best way to learn would probably be to become an indentured servant of some kind, but this is no longer feasible.

Recently I've discovered another source of home-improvement knowledge: videotapes. A well-made tape can supply nuances that are missing from books and convey a sense of how jobs are actually done by people who actually know how to do them. I never took full advantage of my table saw until I had studied a couple of videotapes

and realized that the key to achieving professional results is to strip the tool of all its safety devices, which just get in the way.

THE PROBLEM WITH videotapes is that most of them are awful. Quite a few tapes use actors instead of professionals to demonstrate complicated chores. This raises questions. Should my hammer wobble too? Am I *supposed* to strip the threads on my screws? In the popular Ortho Video Series (produced by the same company that makes Ortho pesticides) most of the how-to material is "dramatized," as in this scene from *Upgrading Kitchens*:

Man: I suspect we'll hear Mom's car pulling up any time now.

Boy: I hope she likes it [her new kitchen window].

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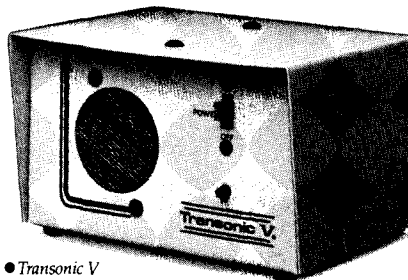
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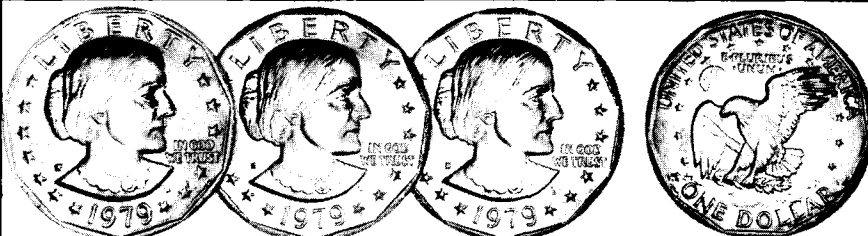
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To make room for this exchange and others like it, useful information presumably was omitted. The other Ortho tapes have the same problem. *Basic Plumbing* is pretty good at showing what happens when two actors pretend to share a summer house but not very good at teaching plumbing. The tape makes no mention of copper tubing, which carries the water supply in most people's houses. Instead, it discusses galvanized steel pipe, which, though seldom used, may be easier for actors to manipulate. Anyone who tried to do to copper pipe what the actors do to steel pipe—unscrew it—would end up either nowhere or with a huge mess, because virtually all copper-pipe fittings are soldered. (Ortho videotapes are available from Ortho Information Series, 575 Market Street, San Francisco, Calif. 94105.)

Not all tapes that use actors are awful. The *Hometime* series, which is the basis of the PBS program of the same name, is quite good, even though the narrators are not professional builders. Their hammers wobble occasionally, but for the most part they do a competent job of demonstrating a broad range of home-improvement skills. And they don't pretend to be married.

Almost any do-it-yourselfer could profit from watching the *Hometime* tapes. The camera angles are good, and the narrators don't leave out many important steps. (This is less true of the television programs, which are shortened versions of the tapes.) The only peculiarity is that each tape contains a lengthy plug for Chevrolet, which underwrites the series and, in doing so, keeps down the price of the tapes. I happen to enjoy watching commercials for pickup trucks. If you don't, you can fast-forward through them.

The *Hometime* tapes are reasonably thorough. All of them last at least forty minutes and contain very little chit-chat. At the end of the seventy-five-minute *Decks* I felt I had a good idea of how to add a huge, ugly platform to the back of my house. There are many thoughtful touches. In *Common Home Repairs*—a useful general reference that provides a good introduction to many of the other tapes—the toilet on which plumbing repairs are demonstrated has a see-through tank, making it easy for a viewer to follow what's happening. (Is it possible to buy a toi-

let like that?) In *Finish Carpentry*, which is primarily concerned with the installation of interior trim, the narrators demonstrate 45-degree cuts on three different miter boxes, indirectly proving why you need to run out and spend several hundred dollars for a power miter saw. (Hometime is at 6213 Bury Drive, Eden Prairie, Minn. 55346.)

Another series of tapes with a television connection is the Hands-On Series, produced by DIY Video (1712 Euclid Avenue, Charlotte, N.C. 28203). This is the same outfit that produces the *Do-It-Yourself Show*, which appears on the Learning Channel. If you like the show, you'll probably like the tapes. I don't.

The Hands-On tapes don't use actors, but there's still too much dumb banter and not enough attention to important details. In the already skimpy *Plumbing & Electrical* tape (just forty-four minutes to cover two difficult subjects) too much footage is devoted to installing an exhaust vent for a clothes dryer, a chore that involves work neither plumbing nor electrical. In *Interior Paint & Wallpaper* the camera cuts away just when you wish it would zoom in for a close-up, such as during the demonstrations of how to paint straight lines and how to paint a window sash. Roller technique is demonstrated on a ceiling and shot from an angle at which it is difficult to see what's going on.

Most of the material on most of the Hands-On tapes could have been explained more clearly in a book—a fatal flaw in a videotape. In fact, much of the material is explained more clearly in the booklets that accompany the cassettes.

THE BEST TAPES I've come across are the Taunton Press's Video Workshops. Taunton Press is the publisher of *Fine Woodworking* and *Fine Homebuilding*, two excellent magazines aimed at professionals and extremely serious amateurs. Both these magazines make me feel incompetent, but they're filled with good tips, such as how to make a pair of stilts for dry-wall work (by fastening a pair of old sneakers to the bottoms of two empty joint-compound buckets). They also contain near-pornographic ads for power tools.

Most of the Video Workshops are based on material that originally ap-



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Next Month In The Atlantic



THE COMING GLOBAL BOOM by Charles R. Morris

The prevailing atmosphere in the United States seems to be one of unrelieved gloom. The world creaks beneath hopeless burdens of debt and deficits. Japan is destroying the world trading economy. Europe is retreating into "Fortress 1992." Such dire portents notwithstanding, a small but growing group of economists make a strong case that the world and the United States are on the threshold of an almost unprecedented economic boom.



ARE YOU A DIFFICULT PERSON? by David Owen

A seeker of enhanced self-esteem attends a seminar called "How to Deal With Difficult People," conducted by CareerTrack, Inc., one of the nation's largest and fastest-growing producers of business seminars. "I went because I had received an enticing promotional brochure that asked me whether I recognized the following types of people: know-it-alls, passives, dictators, yes-people, no-people, and complainers. Yes, I recognized them."

peared in the magazines. Some (*Carve a Ball-and-Claw Foot*, for example) are a trifle exotic for the average do-it-yourselfer, but all are well produced and filled with information. Even if you have no interest in the ostensible subject of the tape, you can pick up a lot of good general information about using tools. And the sound track is Beethoven.

The narrators of the Video Workshops are real craftsmen. What they lack in stage presence they make up for in skill. Frank Klausz, a woodworker who narrates three of the tapes, speaks with a thick European accent ("I tink you pretty goodly get the idea by now"), but this guy really knows what he's doing. When he dovetails a drawer in *Dovetail a Drawer*, he makes his cuts *freehand*.

My favorite Video Workshops are *Repairing Furniture* and *Refinishing Furniture*, by Bob Flexner, a professional restorer. Flexner is especially good at showing how misguided attempts to repair furniture can cause more problems than they solve. Using a nail instead of glue to tighten a loose leg on an old chair (as I myself have done) will often destroy the chair, by splitting the wood and ruining the joint (ditto). Flexner shows how to make durable repairs by carefully cleaning out the old joints and applying the proper glue. In many cases the proper glue is nothing more exotic than plain old white Elmer's. When amateurs have trouble making glue stick, Flexner says, it's not because they didn't use strong enough glue but because they didn't clean away all the old glue first.

Much of what Flexner does is far beyond the ambition of the average person, but even so, the tapes are filled with useful instructions. After watching him demonstrate how to remove a white water ring from a tabletop, I stopped the tape, went downstairs, and used his method (dabbing lightly at the ring with a cloth moistened with alcohol) on a white ring that had been bothering me for months and that I had assumed would be hellishly difficult to remove. The ring disappeared immediately. (You need to be somewhat careful doing this, because alcohol itself can cause white marks in furniture finishes and it dissolves shellac.)

Several of the Video Workshops are intended as accompaniments to full-length books, which are sold separate-

ly. These tapes contain on-screen page references. Assuming that you have the inclination and the tools, you can really follow along, step by step. It's like receiving private lessons from a pro.

One of the book-and-tape sets is *Making Kitchen Cabinets*, by Paul Levine. Levine has developed a simplified method for making so-called European-style cabinetry, which is the kind of sleek, frameless cabinetry you see in a lot of expensive modern kitchens. I don't happen to like this style, but watching the tape and reading the book are good ways to learn about cabinet-building in general, as well as about table saws, routers, and the other tools that Levine uses in his work. Many of his techniques can be applied to all sorts of woodworking projects. (The Taunton Press is at 63 South Main Street, Box 355, Newtown, Conn. 06470.)

The Video Workshops notwithstanding, videotapes aimed at a professional audience aren't necessarily better than those intended for do-it-yourselfers. I was greatly disappointed by two tapes (one on dry-wall and one on painting) produced by the Craftsman Book Company, a publishing and mail-order company that caters to builders. The narrators of both tapes spend a great deal of time staring into the camera and very little time demonstrating technique. Even worse, some of the joint-finishing methods demonstrated in the dry-wall tape are production-line techniques often used by people who want to learn how to do a job fast, not well.

Even if you know what you want, identifying good tapes can be difficult. Ordering from a catalogue is risky, because many catalogues are vague about identification. The fine Hometime series (which lists for \$9.95 per tape), for example, is sold through the Craftsman Book Company catalogue and the Leichtung Workshops catalogue, among many others, but is identified in neither. Craftsman inexplicably charges more than 50 percent above list price. *The Knowledge Collection*, a 400-plus-page listing of instructional videotapes that is sold in bookstores and elsewhere, lists roughly seventy-five home-improvement titles but names the sources of only a few, making it difficult for the buyer to beware. So beware. □

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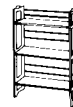
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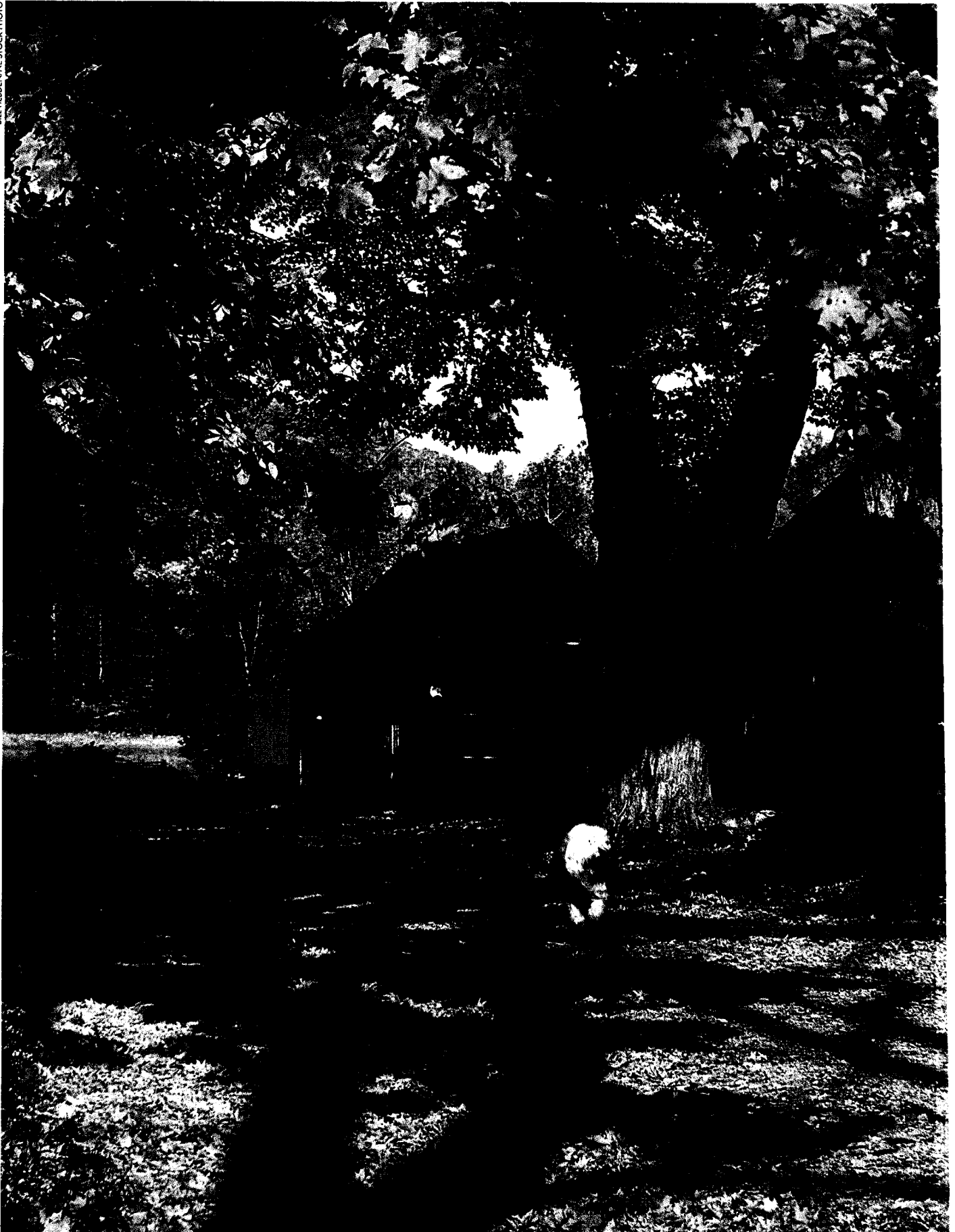
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by Jack Beatty

Vermont is my birthright. People there are happy and content. They belong to themselves, live within their income, and fear no man. —Calvin Coolidge

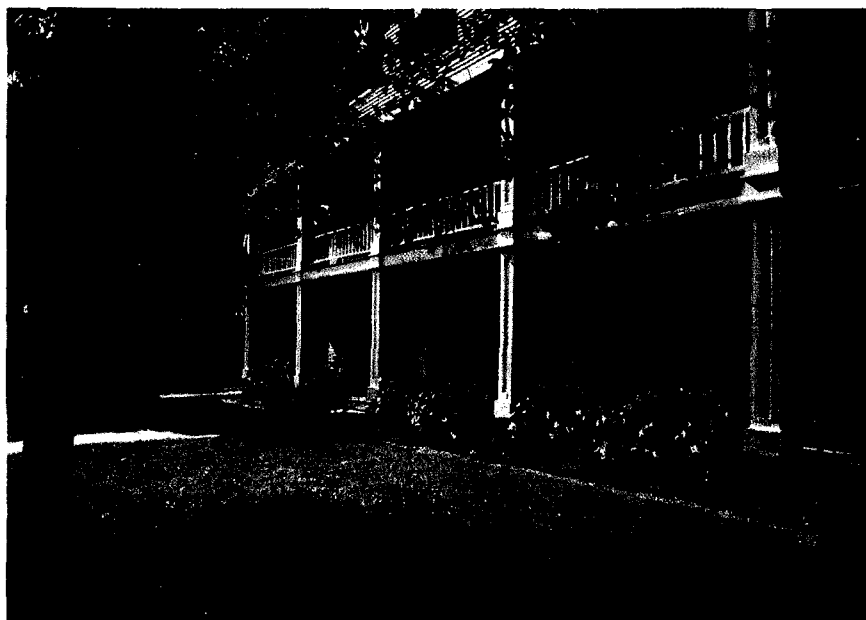
THE TOWN OF Grafton, not far from the Connecticut River in southeastern Vermont, makes you wish you possessed a lexicon of "charm." A visitor trying to sum Grafton up is left helpless before the task of distinguishing between views equally lovely, antique houses equally graceful, church steeples equally eloquent against the star-shot night sky. Grafton is something of a handsome cliché, an archetype of the New England village. Yet it is no lavish fossil, like Williamsburg, Virginia. Real life goes on in Grafton. Real people live there (some 600 of them). Their ancestors are buried in the cemetery at one end of the village, and are remembered on the war memorial—which covers all the wars that this country has fought, from the Revolution to Vietnam—at the other. In between is The Old Tavern, a carefully restored early-nineteenth-century stagecoach inn that features a fine restaurant, charming (that word again) period-style rooms, and long verandas lined with green-wicker rocking chairs. There my wife and I fetched up, at the start of a recent visit, to lay plans about what to do in Grafton.

The Old Tavern (whose rates are \$50–\$120 for rooms in the main building and \$105–\$320 for entire houses nearby) makes provision for riding, biking, billiards, tennis, table tennis, platform tennis, hiking, swimming, shuffleboard, sledding, and (at its ski-touring center on the outskirts of town) cross-country skiing. Nine ski resorts are within an hour's drive. Chess and checkers are available against emergency. Yet this menu of distractions, rich and varied as it is, is somehow not the point of Grafton. "People who come up here asking what they can do are probably in the wrong place," one longtime resident told me. Grafton is a place to *be*. In the last two weeks of September and the first two weeks of October, the densely and deciduously wooded hills surrounding Grafton do their ineffable best to exceed the limits of the lexicon of beauty. While the eye feasts on the scene, the car rests. There are only three paved roads in and out of Grafton—the others are gravel—and so there is little street noise. A dog barks, a screen door yawns open and shut, an old man on a wicker rocker sighs in his nap, and the

quiet framed by these sounds is, to quote a townswoman, "as balm to the soul."

Our first evening in Grafton we liberally soothed our souls in the ambient balm. It worked wonders, and its effect was not a whit diminished by the generous dinner (a chutney spread and crackers, a delicious soup made of Grafton cheddar cheese, a superior pheasant, and a delicately sugared wedge of apple pie) and the several samples of the excellent local ale (Catamount, made in White River Junction) that we enjoyed under a copy of Reynolds's portrait of Samuel Johnson in the large dining room of the inn. After dinner we took a walk on the gas-lamp-lit main street, and it occurred to me that the people in the houses we passed must grow tired of the sight of middle-aged couples, the women in high heels, the men in city shoes, walking by their doorways holding hands. But romance is the subtext of Vermont, after all, and perhaps the locals take the general air of connubial contentment as recompense for winter. We got back from our walk just in time to hear one of the innkeepers give a recital of Renaissance lute music on his bulbous, beautiful instrument. It was exquisite, and the setting—the restored raw-timbered barn that, replete with a giant fireplace and a cozy bar, functions as the lounge—had a spectral, candle-lit appeal of its own.

The next morning we rented two wide-tire, soft-seat bikes and set off up Route 35 to the neighboring town of Chester, seven Vermont miles away. Grafton being in the cleft made by the narrow Saxtons River, the road out of town was steep going at first, but soon it leveled off, and for much of the remaining way we were in fact going downhill, sometimes at a speed that seemed to rival that of the rare passing car, which more often than not was a Saab, the state car of Vermont. The road is smooth, for the most part, and lined on either side with lush forests, rolling fields, and the purgatorial pastures—stump-riddled, rock-bordered—of the Vermont farmer. At the bottom of one very long hill we saw a dirt road off to the right. We pedaled up the road until a dog barked, and beheld a red-brick colonial farmhouse that, along with its pastoral setting, has probably not changed in two hundred years. It was an admirable example of what one



CONSTANTIN I. KAZAK

The Old Tavern at Grafton

writer has called "the social museum that is rural Vermont."

Chester boasts several art galleries, a large bookstore, a row of grand old houses, and a number of inns. With rain clouds threatening our progress, and the memory of Catamount ale still fresh on my lips, we decided to stop for lunch at the Inn at Long Last, which sits right in the center of town, just behind the narrow village green. The food—roast-chicken and fried-vegetable sandwiches—was delicious, the ale sustained the burgeoning reputation of Catamount, and the coffee was exceptionally flavorsome. The cavernous lobby of the inn was a good place to sit and read and listen to piped-in classical music while waiting for the rain to stop. It was in the lobby that we met the inn's most interesting feature—its owner, Jack Coleman.

Even if his name does not immediately ring a bell, you probably remember him. Fifteen years ago, when he was the president of Haverford College, he achieved minor celebrity for spending a sabbatical in a variety of blue-collar jobs and then writing a book about his experiences. At Haverford, Coleman became a Quaker, and ever since, it seems, he has been taking on the most unlikely roles—prison inmate, homeless person, foundation director—in search of a way of life in accord with the deep-rooted idealism of his nature. He and Vermont were made for each other.

Though he is high-minded, behind

his village-elder gray beard Coleman can be a droll fellow. He regaled us with stories about the few memorably inappropriate guests he has had in his three years at the inn—people, he explained, "who really belonged in the Ramada Inn." He told us, "One man wrote me a letter of complaint. 'You may not be aware of it, Mr. Coleman, but your rooms have no telephones, no televisions, the floors squeak, and all the furniture is old.' I wrote him back saying I was sorry but the furniture was as old as I could afford."

Also in Chester is a mammoth book barn and junk store, on Route 103 just west of the center. Some books have been in its musty rooms so long that history has played tricks on them, turning yesterday's remainder into today's camp classic. Take *You and Your Congressman*, a 1965 book by Jim Wright, the former speaker of the House. "Every now and then," he writes,

in visiting among my constituents or on my occasional trips to other parts of the country, I'll be called off to the side by some concerned citizen. With wrinkled brow, he'll look at me earnestly and ask in a confidential tone: "Tell me, Jim, is Congress really as bad as they say?"

His answer, given in a closing chapter with that question as its title, is no. "Frankly, I have no pat solution for this human propensity to defame public officials," he concludes.

Back in my green-wicker rocking chair on the veranda of The Old Tav-

em I would have read more of these improving reflections, but I had to tear myself away to explore Grafton.

BIKING AROUND GRAFTON, over a covered bridge across the Saxtons River, and up a dirt track canopied by trees for much of the way, I came upon one of the largest and lushest groves of birch trees that I had ever seen. Being there in fall is like entering the mind of color. It is a spectacular sight, and I would have stayed longer if I had not been told about the coyotes (the rumor is true; they've come back to Vermont) and the bear (who never left).

I biked up Route 121, which runs past The Old Tavern, with a destination in mind. Past the inn the road takes an achingly inviting right-angle turn at the big white church and soon turns to gravel. The sights here include the Saxtons River, which runs alongside the road, the occasional tradesman's house with its rustic sign (NOJOB TO BIG OR TO SMALL), the Grafton Village Apple Company, and a former one-room red schoolhouse with a bright white gazebo in the clearing adjacent to it. Between the apple company and the schoolhouse is a turnoff on the right, which leads to a miniature lagoon nestled in the narrow river. Made by an overhang of boulders and trees, and featuring a five-foot stretch of sandy beach, it would be the ideal spot to punctuate a picnic (they put up box lunches at the inn) with a discreet dip.

But I pressed on, taking a left at the dirt road just past the schoolhouse, pausing long enough to admire the meadow ahead on Route 121, and then climbing a steep hill that soon took me past a brick farmhouse. Framed by tall trees and sloping "mowings," as meadows are called in Vermont, it is inexpressibly graceful. In a town of parts that stand for the whole (Vermont, New England, your pastoral dreams), it is an architectural quintessence. Farther along up the hill, past curious horses eating their way across a mowing the size of a city block, and around a hairpin turn, I started up the long driveway that leads to the 200-acre kingdom of the Gabriels. They—Anne and Frank Gabriel—bought the oldest house in Grafton (1789) after Frank retired from the army, about twenty-five years ago, and converted it into the Inn at Woodchuck Hill Farm.

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The Israeli Peace Initiative

Can it restore peace and tranquility to this troubled area?

During his recent visit to Washington, Prime Minister Shamir of Israel proposed a comprehensive Peace Initiative to the U.S. Government, to the world, and especially to the Palestinian Arabs and to the Arab states. This Initiative has been endorsed by the Israel government and the Knesset, by the U.S. State Department, by a bi-partisan group of 95 U.S. Senators, and 233 members of the House. Many western governments have expressed their agreement with elements of the proposal. The PLO and the Arab states have so far rejected the Initiative. What is Mr. Shamir's proposal, and can it indeed lead to peace in this troubled part of the world?

What are the facts?

■ In order properly to assess the political realities in the Middle East, it is important to realize that the conflict between Palestinian Jews (Israelis) and Palestinian Arabs is not the core of the Arab/Israel problem. It is only a side issue. The main event, the core of the problem, is the unrelenting effort on the part of some Arab states to defeat Israel militarily, to dismantle (what they call) the "Zionist entity." That effort has been unceasing since the creation of Israel in 1948, and has given rise to five major wars. With the exception of Egypt, which finally concluded peace with Israel in the Camp David Accords, most other Arab states are still in a state of war with Israel. All Arab states are participants in the world-wide boycott of Israel, which has as its purpose the economic strangulation of that country. The Covenant of the PLO, which cannot be voided by a casual word by its chairman, makes the "liberation of all of Palestine"—and that, of course, includes the state of Israel—its primary goal and ultimate purpose.

■ Since the beginning of the so-called "intifada," Israel has spared no effort to control and appease that uprising, with as little loss of life and injury as possible. It is likely that this very concern for human life is the reason that the situation is not yet under control. One cannot help but compare the Israeli way of handling civil disturbance with the "effective and efficient" method of the Chinese, who watched their dissenters for a week and then restored "order" by ruthlessly killing several thousand citizens; or with the Syrians, who when the citizens of Hama defied the regime of President Assad, killed about 20,000 of their own people in one quick operation; or with the Iraqis, who poison-gassed 4,000 of their own Kurdish citizens, whom they suspected of "disloyalty" and chased over 10,000 survivors over the frontier into Turkey and Iran. Israel is prepared to make far-ranging concessions to meet the legitimate aspirations of the Palestinian Arabs. Such accommodations, however, can only be made after order has been restored. Also, a final settlement could only take place in the context of peace—not just with the Palestinian Arabs, but with the Arab states

themselves, especially, the so-called "confrontation states"—Syria, Jordan, Iraq, Lebanon, Saudi Arabia and Libya.

■ Unfortunately, while there is constant clamor for Israel to make "sacrifices for peace," no such requests are being made of any of the Arab countries. Nor has any Arab country come forward offering to change its stance toward Israel, even if the Palestinian conflict were settled. A good beginning, for instance, could be made by the Arab states denouncing and rejecting the infamous equation that "Zionism = Racism," by rescinding the economic boycott against Israel, and by public declaration that peace negotiations with Israel could start simultaneously with the effort to address and resolve the Palestinian problem. Any cessation of territory or even of administrative control over the territories would fatally weaken the already precarious military situation of Israel—unless it were in the context of a comprehensive peace settlement with all of the Arab countries.

■ In spite of these difficulties, and in spite of the unrelenting hostility of the Arab states, Mr. Shamir, Prime Minister of Israel, has presented a comprehensive Peace Initiative. The peace with Egypt, based on the Camp David Accords, should serve as the cornerstone for this Initiative, enlarging the circle of peace in the region. It calls for the extension of that peace through continued consultation. Israel, in its Initiative, calls for an international endeavor to resolve the problems of the residents of the Arab refugee camps—slums that have been perpetuated for over 40 years. Israel wishes to improve the living conditions of these people and to rehabilitate them. It wishes to be an active partner in this humanitarian enterprise. The most important step of this Initiative, are full and democratic elections in the territories, so that the inhabitants of Judea/Samaria (the "West Bank"), and of the Gaza district can elect representatives with whom negotiations for a 5-year transitional period can be held. During this period, options for a permanent solution will be examined and peace between Israel and Jordan will be achieved. Negotiations for such permanent solution shall begin as soon as possible, but not later than the third year of the transitional period.

The above is of course, only the barest outline of Israel's Peace Initiative. It is the first viable peace plan ever offered. It is the expression of the yearning for peace of the people of Israel and of its desire to make peace with its neighbors, to build a Jewish homeland without the ever-present specter of war, and in the hope of being able to play its role in the development of the entire region. In order to begin with the first phase—free democratic elections in the territories—it is obvious that tranquility has first to be restored. The Israelis, unwilling of course to use Chinese, Syrian or Iraqi methods of "restoring order," have so far been unable to do it. But the Arab governments, by expressing their desire for peace and by supporting Israel's Peace Initiative could do so practically overnight. And the Arab states could further signal their desire for peace by declaring their willingness to enter peace negotiations with Israel, by renouncing and rejecting the slanderous equation that "Zionism = Racism," and by ending the economic boycott against Israel. Thus, Israel's Peace Initiative, being accepted by the Palestinian Arabs and finding echo with the Arab governments, could be the first step toward a just and permanent peace in an area of the world that hasn't known it for decades.

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The accommodations at Woodchuck Hill Farm are gorgeous, with skylit rooms, Mexican-tile baths, and a huge covered porch with views to Mount Monadnock, in New Hampshire. There is, in addition, a swimming pond stocked with bold trout. In the back of a converted old barn is a large multi-level apartment, complete with kitchen (this goes for \$110 a night for two, while other rooms go for \$65-\$95 a night; all rates include breakfast). At the opposite end of this barn is the Gabriels' antique shop. The Gabriels run the inn from May through October; the rest of the time they divide between Florida and traveling the world looking for fine things to put in their shop. For \$30 I bought my wife a wool Victorian shawl that was exquisitely made, also warm, and also very beautiful. The Gabriels' barn is crammed with country treasures selected by people of rare taste.

The Gabriels serve a hearty breakfast to the guests at their inn—home-made pastries and eggs laid by their own hens—but they no longer offer dinner, or do so only rarely. Anne Gabriel got tired of all the work. Besides, people don't want to eat at the same place every night, she told me. Now she and Frank generally confine themselves to recommending restaurants. To me they urged the merits of the Four Column Inn, in Newfane; the Three Clock Inn, in South Londonderry; and, with an appetite-kindling enthusiasm, the Inn at Sawmill Farm, in West Dover, about thirty miles from Grafton.

The Inn at Sawmill Farm is one of only fifteen establishments in the United States bearing the distinguished imprimatur of The Relais & Chateaux. This collection of independent hotels with premium-quality restaurants is to ordinary hosteleries as filet mignon is to hamburger. Served in an old barn that has been refashioned into an opulently rustic restaurant, the inn's food overmatches my power to render tastes in words. From the delicately flavored cream soup to the beer-battered shrimp to the succulent veal chop to the Michael S. Dukakis memorial salad (made of Belgian endive, which Dukakis once urged on hard-pressed Iowa farmers as an alternative to their messy old corn and hogs) to the low-bush-blueberry pie, it was a girth-stretching meal that had me puffed out

like an alderman. The rooms at Sawmill Farm are luxurious; many have private fireplaces, and all seem to have been decorated by the hotel industry's Edith Head—they are so gaudily bedecked and caparisoned that I appreciated anew the firm good taste of the Gabriels and the prim Yankee charm of The Old Tavern. Prices are high (just over \$300 for a room, dinner, and breakfast for two), but the food alone would almost be worth it.

VERMONT IS A state that depends crucially on tourists. Its people, though, retain the independence and dignity that Calvin Coolidge prized in them. It's easy for us tourists to forget, but it isn't only nature that brings us the long-running production *Vermont*; necessary, too, are the care, the self-interest, and often the self-sacrifice of Vermonters.

I was reminded of the people behind the scenery last winter on a visit to The Old Tavern. It was well below zero that evening; the windows were thickly covered by embroideries of frost. We had had a large, delicious dinner, had sat by the hearth watching the logs spark and glow, had had our brandies, and were snug in our beds when we were awakened by the wail of a siren. We rushed to the windows but could see nothing; apparently there was a fire in a nearby village. Our feet freezing against the cold floor, we scurried back to bed. Next day—a bright, clear morning; temperature zero—I was taking a post-breakfast walk around town when I spotted the fire engine returning to the firehouse. It was 9:00 A.M.; the siren had gone off at two. The men on the engine were covered with pitch and ice—ice in their hair, ice in their nostrils, ice caked on their gloves and boots. They were volunteer firemen, and now they would have to clean themselves up and go on to their day's work. They had spent the night fighting a fire in the town of Saxtons River. If there had been a fire in Grafton, volunteers from Saxtons River would have come to fight it. Mutual aid is the ethic these villages live by.

And somehow, knowing that our safety rested in the hands of those who live out a pre-modern ethic, protecting life and property on stinging winter nights—somehow, that deepens the pleasure I take in Grafton, giving character to its charm. □

Books

With the Rebels

by James Fallows

RED REVOLUTION
by Gregg R. Jones.
Westview Press, \$26.95.

BECAUSE OF THE way the fighting turned out in Cuba, Nicaragua, and above all Vietnam, Americans tend to assume that once Communist guerrillas get started, they can't be stopped. But many cases point the other way. In the 1950s, when Malaya was still a British colony, Malayan and British Commonwealth soldiers eliminated all but a handful of the guerrillas known as CTs, for "Communist terrorists." In the 1960s Indonesia killed hundreds of thousands of its Communists, along with countless other people, during a wave of violence that lasted for at least half a year. In the late 1970s, even as Communist Vietnamese forces tightened their hold on South Vietnam, Laos, and Cambodia, Thailand was subduing the Communist guerrillas who operated in the hills bordering Indochina.

The Philippines, too, has defeated Communist-led guerrillas. The Hukbalahap rebellion of the late 1940s and early 1950s was put down under the leadership of the popular and honest Defense Minister, and later President, Ramón Magsaysay. The Philippines has another popular and honest President

now, but it is an open question whether Corazon Aquino or her successors will be able to contain the New People's Army (NPA), which has been operating in the archipelago for more than twenty years.

For the past five of those years a young American named Gregg Jones has reported on the guerrillas, traveling with them for a total of about two and a half years. In *Red Revolution* he reveals what he has learned. This book will never be read for its literary polish; Jones is at best a workmanlike writer, and he lacks a highly developed sense of how to tell a story or make a point. (In one all too typical example he introduces a young guerrilla named Lisa, says that she grew up in a privileged Manila environment and had trouble adjusting to the hard life in the bush,

tells us that she fell sick with a mysterious jungle ailment and was taken to the hospital after she took a sudden turn for the worse—and then changes the subject and never gets around to telling us whether she lived or died.) William Chapman's *Inside the Philippine Revolution*, published two years ago, is much more skillful in combining reportage with a historical and cultural perspective on the growth of the NPA. A novel called *Mass*, by the renowned Filipino writer F. Sionil Jose, is even more accomplished in evoking the half-idealistic, half juvenile-delinquent culture of young rebels in Manila.

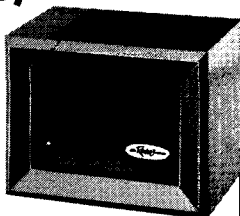
I mention these stylistic problems mainly to get them out of the way, because the prodigious, often brave reporting that Jones has done makes this an engrossing and highly informative book. Jones, who is only thirty, has spent more time with the Philippine rebels than any other American reporter I'm aware of, and his book is full of information available nowhere else.

The biggest scoop in the book (apart from the by-the-way disclosure that Rodolfo Salas, an important Communist leader who was captured by the government, kept a copy of David Stockman's *The Triumph of Politics* on the bookshelf in his prison cell) concerns the Plaza Miranda incident of 1971. At the Plaza Miranda, a popular gathering place in Manila, the Liberal Party was holding a rally for candidates who would run against Marcos. Someone threw grenades toward the platform, killing nine people and injuring more than a hundred. Marcos immediately blamed the Communists, and he used the



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episode as part of his justification for imposing martial law the following year. The Communists, along with many of Marcos's critics in the United States, said that Marcos had cynically engineered the whole incident himself and was making scapegoats of the Communists. According to Jones, Marcos was right all along. Jones says that José María Sison, the founder and chief strategist of the Communist Party of the Philippines, planned the bombing in hopes that it would have exactly the effect it did—discrediting Marcos and provoking him to take extreme steps. The CPP heatedly denies responsibility for the bombing, but Jones's evidence, taken mainly from interviews with Party members who had never before discussed the incident with a reporter, is very convincing. Jones says that shortly after the bombing the Party member who had carried it out started bragging about what he had done. An NPA "court" was assembled to try him for disloyalty, and by a 6-3 vote the judges decided on the death penalty. Jones tell us that "in a gesture of party solidarity," a woman who had voted against the death penalty volunteered to pull the trigger.

The Plaza Miranda episode illustrates several larger themes that run through the book. One is the intensity of factional and ideological feuding within the Communist Party and its military arm, the NPA. The disagreements often turn on whether the Communists should hope that Philippine politics becomes fairer and the average Filipino's life becomes easier—or that everything gets worse, so as to force a revolutionary crisis. The question emerged in particularly stark form when Marcos called his "snap election" late in 1985 and Corazon Aquino decided to run against him. The hardliners argued that the CPP should boycott the election and refuse to help the Aquino forces—a disastrous miscalculation that convinced millions of Filipinos that the Communists did not really care about the country's welfare.

ANOTHER THEME IS the NPA's heavy but not indiscriminate reliance on violence. Jones points out that the Plaza Miranda bombing remained a source of quiet self-recrimination within the movement. Since then random terrorism against civilians or mere bystanders in the Philippines

has been rare, even though the overall level of political violence is high. The Communists seem to have concluded that generalized violence, of the sort familiar from the Middle East and Northern Ireland, hurts their cause. Two years ago, in an exception that proves the rule, NPA saboteurs blew up several bridges that connected the farming areas of Bicol with Manila. In theory this might have demonstrated the government's inability to control the countryside—but in fact it mainly embittered the populace against the Communists, because without those bridges the farmers could not sell their crops, and the prices of basic commodities soared. Jones also shows, however, that the Communists are not at all squeamish about targeted political violence. Nearly every chapter contains accounts of the executions of dissenters or "sparrow unit" assassinations of government or military officials. Jones tells in frightening detail about an intra-Party bloodbath on the southern island of Mindanao, "an NPA purge so terrifying and brutal that hundreds of guerrillas and perhaps tens of thousands of civilian supporters deserted the formidable communist organization on Mindanao between 1985 and 1987." The guerrillas initially built support in many villages, Jones says, by presenting themselves as free-lance crime-stoppers, who would put an end to theft, water-buffalo rustling, and other offenses. The villagers would mention their complaints, and a few days or weeks later the perpetrators would disappear or turn up dead. Jones says, "If some in the village were uncertain about supporting the guerrillas, the killings served as a reminder that it was prudent to stay in their good graces."

One other, surprising implication of the Plaza Miranda episode is that Ferdinand Marcos and other anti-Communists were telling the truth more often than the outside world believed. In the summer of 1972 a decrepit fishing trawler called the *Karagatan* ran aground off a remote coastline area of Luzon. Marcos claimed, to widespread international derision, that the ship was carrying weapons and supplies for the guerrillas, sent from China. Jones shows that Marcos's version was correct: the *Karagatan* was full of rifles and ammunition, which the rebels badly needed and most of which the Philippine Army seized. (Jones gives a

fascinating discussion of the Chinese-Philippine connection, in which he shows that the Philippine Communists looked most admiringly at China during the era of the Little Red Book and the Cultural Revolution.) Anti-Communists in the Philippines have long contended that the CPP was insincere in forming a popular-front alliance with religious groups and liberals, and that the NPA never seriously intended to negotiate for peace during the cease-fire period that Aquino had promised during her election campaign. Jones says that these criticisms, too, are essentially correct. The Party strategists felt they couldn't flatly reject Aquino's offer, but "the CPP leadership made it clear to all its forces that [the peace talks] in no way signaled a departure from the strategic line emphasizing armed struggle as the key to seizing political power."

One of the most remarkable things about this book is the combination of warmth and objectivity with which Jones discusses his subjects. He has obviously spent enough time with Communist leaders and NPA foot soldiers to think of them as friends, or at least to present them as real people, with children and hobbies and fears, rather than as stick-figure revolutionaries. (Some of the favorite diversions in the guerrilla camps, he says, are singing ballads and pop songs, including American hits, and playing chess—activities that are also favorites in the Philippines as a whole.) And Jones has seen enough of the misery and injustice of the Philippines to understand why people join the NPA. In the preface to his book he says that his purpose is not to provide an analysis of the Communists' military or political vulnerabilities. But by faithfully reporting what he has seen, Jones does end up revealing several of the weaknesses of the movement.

ONE IS SIMPLY the moral appeal of Corazon Aquino. Jones shows again and again and again how Marcos's downfall and Aquino's apparent sincerity took the steam out of the revolutionary movement. Aquino did not draw as many guerrillas away from the NPA as she had hoped, but she greatly dampened its popular support.

A second vulnerability is even simpler: the rebels don't have enough



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Answers to the August Puzzles

"CRYPTIC GOLF"

1. a. (t)RAILING b. G(RA)INS c. S(ho)T-RAW
d. W-HOLE 2. a. ENTHRONED (anag.)
b. (h)EDGED c. DR-O-PIN d. N(A)IL'S 3. a. SHE-
A-THIN-G b. GOC-ART (cog rev.) c. TA-STES
(rev.) d. S-CUBA 4. a. ANTIGEN (anag.)
b. NO(S)H c. HAREM (hidden) 5. a. MUS-
KRATS (rev.) b. STAG-N-ANT c. TEA-L
d. LO(N)G 6. a. G-RATINGS b. SIESTA (anag.)
c. A-TH(LET)E d. EDIC(T) 7. a. TOCSINS (ho-
moph.) b. S(T)PEND (it rev.) c. D(E-E)P
d. PAGES (double def.) 8. a. SNEE(Z-IE)R
b. REGNA-NT (anger rev.) c. TEC (anag.)
d. CLIP (double def.) 9. a. P(ROTE)INS b. SI-
R (is rev.) c. RHO (hidden) d. O(HI)-O
e. OWNS (anag.)

R	S	I	E	S	T	A	R	K	S	U	M
P	A	G	E	S	T	O	W	N	S	I	E
E		I	N	H	N	A	I	L	S		R
		L	I			E	G	H		H	A
D	N	E	P	I	T	S	E	N	O	S	H
G	T	O			O	N	A	E	Z	A	
E	R	A	R	I	T	G	R	A	I	N	S
D	A	P	S	H	I			G		E	T
I	C	C	I	T	T	N	A	N	G	E	R
C	O	N	N	L	E	N		O	A		A
T	G	A	B	U	C	S	E	L	O	H	W

ACROSTIC NO. 49

"A Cincinnati TV anchorman suggested, 'How about a bite?' . . . I envisioned roast duck and red cabbage in one of the city's celebrated German restaurants. To my grievous disappointment, he had something else in mind: a sound bite in a TV studio."

—Studs Terkel, *The Great Divide*

guns. William Chapman's book stressed that the rebels' operations were often limited not by manpower or the degree of popular support but by their inability to get weapons from foreign suppliers. The scattered island geography of the Philippines is in one way a potential advantage to the guerrillas, because it creates hundreds of possible beach-landing sites, but it also makes their strategic situation much more difficult than that of the Communists in Vietnam. There is no friendly hinterland to fall back upon, no overland supply route comparable to the Ho Chi Minh Trail. Local supply shortages often develop—especially of rifles and bullets. Jones says that ammunition is so scarce that after engagements guerrillas have to account to their superiors for each bullet they used. Through the past year, Jones says, "a shortage of rifles remained a chronic problem curtailing the growth of the NPA in many areas."

Jones also shows that the Philippine armed forces, which are often viewed with condescension by outsiders, have repeatedly hampered and trapped the guerrillas. An impressive number of the NPA foot soldiers Jones introduces end up being arrested or killed. Vietnam has left many Americans assuming that no matter how many guerrillas die, many more will spring up. That may eventually come to pass in the Philippines, but Jones shows that the army has had an effect.

Exactly how violent and how repressive the NPA would be if it took power is impossible to say; Jones wrestles manfully with the question, eliminating any suspicion that the NPA is just another group of liberal reformers. The most chilling lines in the book are the comments of Brendan Cruz, a former Catholic priest, who told Jones that the Philippine Communists had learned one important lesson from the policy of the Khmer Rouge in Cambodia: "They moved too fast." (To be fair, Cruz was talking about the scorched-earth economic policy, not the Cambodian genocide.)

If the NPA should finally take power in the Philippines, people will look to Jones's book as an important guide to the nature and background of the new regime. While the guerrillas remain on the outside, his book is the fullest account yet available of who they are and how they fight. □

Brief Reviews



RIVER SONG by Craig Lesley. Houghton Mifflin, \$18.95. Danny Kachiah, the protagonist of Mr. Lesley's novel, mourns for his dead wife and worries about his teenage son, who wants to be a rodeo rider, an ambition that did his father no good. Danny drifts about Oregon from one hand-to-mouth job to another, cuts his hair short, and can survive dinner in a fancy tourist trap with aplomb. He is, in short, a decent, industrious, sensible man; he is also a Nez Percé Indian with an acute awareness of tribal history and a profound regret at the fading of old customs and the loss of traditions. He still owns a guardian spirit and is subject to visions that indicate that something should be done but are exasperatingly vague about what that something is. When Danny learns that a group of Indian fishermen are having trouble over salmon rights, he joins them. Mr. Lesley's presentation of these people is wonderfully solid. His characters recall old tragedies (salmon fishing from a slippery catwalk is dangerous, and a net hustled up downstream merely catches the corpse), gossip about distant relatives, swap anecdotes, and share a dry, understated wit. For sound reasons, they thoroughly mistrust all white authorities but, except for one hot-tempered young woman, say little directly about the injustices they endure. Mr. Lesley, however, says a great deal on that subject, not through polemic but by his vivid creation of actions and circumstances in the present and, through Danny's visions, of brutality and betrayal in the past. Those visions are a remarkable achievement by the author. They may alarm or distress Danny, but they are presented to the reader in the same practical, commonsense style that controls the rest of the narrative. They carry conviction precisely because they are devoid of spooky trimmings.

OTHER PEOPLE'S TRADES by Primo Levi. Summit, \$18.95. The pieces in

this collection cover almost as many topics as there are chapters—as subjects, the merits of Rabelais, the irritability of chess players, the fear of spiders, have nothing in common. What the essays do have in common is the author's command of intelligence, curiosity, unexpected perceptions, and subtle humor. Opened anywhere, the book will reveal the delightful or the provocative.

SILK ROAD by Jeanne Larsen. Holt, \$19.95. Set in eighth-century China, this novel by a teacher of Chinese studies combines the misadventures of a long-suffering (but of course indomitable) heroine with the jurisdictional squabbles of a gaggle of meddlesome gods. Homer pulled off this sort of thing, but that was a long time ago.

THE GOLD BALL by Hanne Marie Svendsen. Knopf, \$18.95. Ms. Svendsen's novel is set on an imaginary island somewhere off Denmark and follows the history of the place for several centuries. The indigenous inhabitants—a couple of old fishermen—give way to organized settlers, towns, commerce, industry, and even tourists. The author describes generations of increasingly interrelated characters and their absurd or disastrous affairs, creating a small but distinct world. Her mythical island is in fact a metaphor for the real world, and the forces that cause its rise and decline parallel those that threaten us all. Ingeniously constructed, intelligent, admirably written, and ultimately sinister, this work of fiction is impressive.

DEVIL'S ADVOCATES: THE UNNATURAL HISTORY OF LAWYERS by Jonathan and Andrew Roth. Nolo Press, \$12.95. In response to recent moves by the legal profession to discover why the public thinks poorly of members of the bar, the Roths have assembled an anthology of quotations. "We wish to reassure

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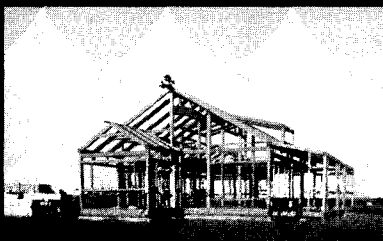
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lawyers," they announce. "This wave of anti-lawyer feeling is nothing new. People have always hated you." Quotations from classical Athens to the present testify to the accuracy of that statement. Sober complaints and satirical diatribes are accompanied by brief accounts of the historical circumstances that provoked them, and the author-anthologists provide almost as much malicious fun with these sketches as the reader will find in the texts they support—provided, of course, that the reader is not a lawyer.

A KNIFE AT THE OPERA by *Susannah Stacey*. *Summit*, \$17.95. Susannah Stacey is actually two Englishwomen, both former schoolteachers, who, in this otherwise merely adequate murder mystery, take amusing revenge on neurotic colleagues and female brats.

THE VANDERBILT ERA by *Louis Auchincloss*. *Scribners*, \$19.95. Mr. Auchincloss makes no claim to deep research, profound analysis, or new revelations in his "profiles of a gilded age." He writes with urbane charm about the ornaments (and sometimes the embarrassments) of New York society at the turn of the century, and one has the impression of listening to an actual survivor of that conscientiously flamboyant period.

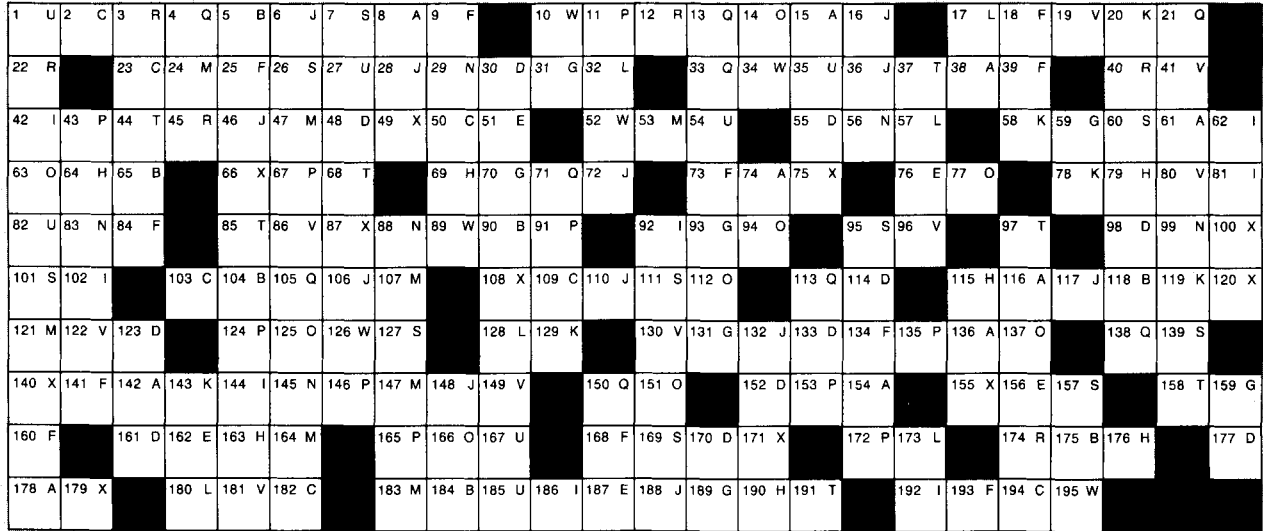
TIMELESS TOWNS AND HAUNTED PLACES by *J. R. Humphreys*. *St. Martin's*, \$22.95. Mr. Humphreys describes himself as "a vague mystic" with a sympathy for the view of those American Indians who "saw the worlds of past and present" as one. This means, practically speaking, that he likes to hunt up towns that look as though nothing had changed since George Washington deplored conditions at the local inn. He has found, and amiably describes, a number of such places from Maine to Florida, with eclectic bits of their history reported as well. His secondary enthusiasm is for ghosts, and in this field he is considerably less successful. He suffers from what is, for a ghost-hunter, a lamentable impediment: he is an honest man. He cannot palm off a creaking floorboard as a ghost.

—Phoebe-Lou Adams

ACROSTIC No. 50

BY DOROTHY OSBORNE

The letters of clue answers, when put in the appropriately numbered squares, will spell out a quotation.
The first letters of clue answers spell the author and source of the quotation.



The solution to Acrostic No. 49 appears on page 110.

- | | | | |
|---|---|--|--|
| A. WCTU adherent | 61 38 154 15 8 142 74 178 136 116 | L. Mythical woman wooed through a wall | 32 180 128 57 17 173 |
| B. Yet to be proved | 175 90 65 104 184 5 118 | M. Ingrid Bergman in <i>Casablanca</i> (2 wds.) | 121 24 47 147 183 53 107 164 |
| C. Deceive by changing plans (2 wds.) | 23 2 103 50 182 109 194 | N. Barnacle's arm; high, wispy cloud | 29 56 88 99 83 145 |
| D. Pretentious; bombastic | 55 48 98 161 114 177 170 133 152
30 123 | O. Swing standard of Glenn Miller's band (3 wds.) | 14 151 94 125 112 63 166 77 137 |
| E. Founder of Egypt's first dynasty | 51 187 156 162 76 | P. Robin Hood's traditional birthplace | 165 67 135 124 146 43 91 153 11 172 |
| F. National League MVP in 1987 (2 wds.) | 193 141 39 9 18 160 25 73 84
168 134 | Q. Glib quality (3 wds.) | 105 150 4 138 113 33 21 71 13 |
| G. Punkie (hyph.) | 159 59 31 70 189 93 131 | R. Violent sandstorm of North Africa | 45 22 174 40 3 12 |
| H. Street vendor's snack | 64 190 115 176 69 79 163 | S. Ramifications; technicalities (3 wds.) | 95 169 26 101 60 157 139 111 127 7 |
| I. Row of perforations between postage stamps | 192 92 144 81 42 102 186 62 | T. Peloponnesian War participant | 191 85 158 68 44 97 37 |
| J. Pulitzer Prize-winning author of <i>Fences</i> (2 wds.) | 106 117 110 46 6 16 36 28 72
148 132 188 | U. A.'s opposite | 167 82 185 27 1 35 54 |
| K. Indian calico | 58 143 119 20 129 78 | V. Uncontrollable urge to buy things | 122 96 19 86 149 130 41 181 80 |
| | | W. Character in three Updike novels | 34 126 10 52 89 195 |
| | | X. Jazz and New Age flutist and saxman (2 wds.) | 171 87 75 100 108 179 49 120 155
140 66 |

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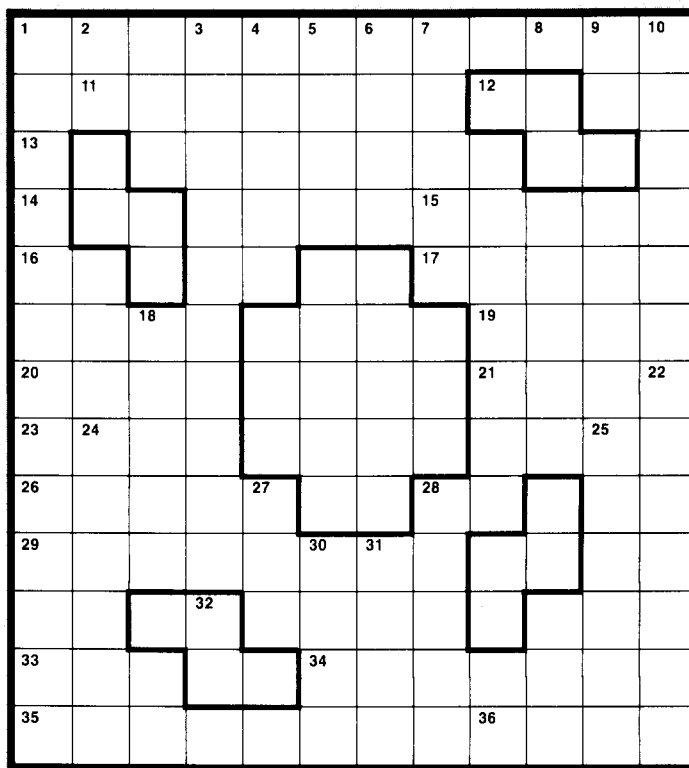
THE PUZZLER

BY EMILY COX AND HENRY RATHVON

JIGSAW

Answers to clues should be entered without regard to the heavy bars, but otherwise normally. When all the answers have been filled in, it will be possible to place the four outlined jigsaw pieces into the central frame, with no turning necessary, in such a way as to form a message reading from left to right and from top to bottom. Clue answers include eight proper nouns.

The answers to last month's Puzzler appear on page 110.



ACROSS

1. Pass out in health clubs (4)
5. Clean drive off, needing booster (7)
11. Alternate baloney swallowed (6)
12. Name taken by men and women (4)
13. Speech specialist in *Turning Point* waits (9)
14. Measuring standard deviation of timer, on average (6)
15. Very American composer (5)
16. Portly British politician tucked into drink (5)
17. *Sounder* earns bucks (5)
20. Open passage turned north (4)
21. One in 150 married still (4)
26. Henry's bundles of rope (5)
28. Ambivalent poet? (5)
29. Far-out segment of *Soul Train* (5)

31. Gaunt eccentric eating nothing sweet (6)
32. Bearing legal claim, elect new buyers (9)
33. Listened to weary African (4)
34. Direction to veer wildly! (6)
35. Chatter about quiet mother's veil (7)
36. Current CW singer Arnold (4)

DOWN

1. Abstract, hot sounds (7)
2. Dances given excellent introductions (6)
3. Support caging sailor's bird (8)
4. Composer in South American neckwear (5)
6. Crowd attended, reportedly (4)
7. A young lady's out of place (5)
8. Planted among vegetables, one seed comes up with flowers (8)
9. Blames on applications (6)
10. CIA forerunner accepts auto trophies (6)
18. A decade passed among equals (8)
19. Furnish piece of land, around \$100 down (8)
22. Flower in my upper hand (7)
23. Plump college mate (6)
24. Explorer's scarf wrapped around robe (6)
25. Mind comprehends a little better (6)
27. Month after transfer of property to state capital (5)
28. Musical group makes zero profit (5)
30. Stamp of approval is gained by Virginia (4)

NOTE: The instructions above are for this month's puzzle only. It is assumed that you know how to decipher clues. For a complete introduction to clue-solving, send an addressed, stamped envelope to The Atlantic Puzzler, 745 Boylston Street, Boston, Mass. 02116.

WORD HISTORIES

Etymologies derived from the files of The Dictionary of American Regional English

BY CRAIG M. CARVER



lurch

When asked during his trial whether any "moral bells" had gone off in his head as he contemplated the diversion of funds to the Nicaraguan contras, Lieutenant Colonel Oliver North replied, "I thought it was extraordinarily immoral to have put a force in the field . . . and then leave it in the lurch." *Lurch* (a vulnerable or difficult situation) comes from the name of a French game, *lourche*, which was exported to England and was popular there during the seventeenth century. It was probably similar to backgammon, but no one any longer knows how it was played. We do know, however, that to incur a *lurch* (the French would have said *demeurer*

lourche) in the game was to be soundly beaten, a meaning for which the word is still used in other games, notably cribbage. Hence *lurch* came to be used figuratively, to mean "discomfiture or a predicament." Etymologically *lurch*, or *lourche*, has a sinister (in its original, Latin sense: left, on the left side) provenance. The French word was borrowed from the Middle High German *lurz* (left, wrong). The notion of left as weak or bad (as in a "left-handed compliment") and right as positive (as in "dexterous" from the Latin *dexter*; "adroit" from the French *droit*; and, of course, "right" itself) is embedded in the language. In Old English *left* or *lyft* meant "weak"; palsy was known as the "left-disease" (*lyftadl*).

buff

The House Ethics Committee's hearings, last May, on the finances of Speaker Jim Wright were shown on television, but not everyone on Capitol Hill saw them. Thomas Foley, who would succeed Wright, told reporters that he had forgotten to tape the proceedings. "I am a *buff* of electronics," he explained, "but I never seem to get the recorders running." A *buff* is, of course, an enthusiast



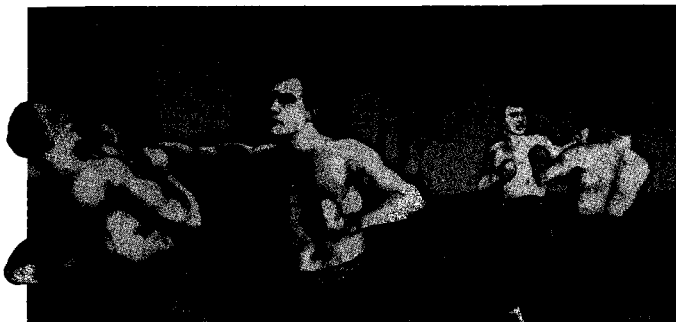
hooligan

"The scarf-waving hordes present a complex, as well as a huge, problem: controlling the numbers; dealing with minor disorders; coping with *hooliganism*." So observed *The Economist* of London in the wake of the tragedy in Sheffield, England, earlier this year, when ninety-five spectators were crushed to death at a soccer match. The term *hooliganism* (violent, disorderly conduct) was coined in Britain a century ago, when rowdy soccer fans were already a serious problem, but today it is probably used more frequently in China and the Soviet Union, where it is the term of

choice for certain forms of illegal behavior, than it is in any English-speaking country. The Russians turned the word *hooligan* into *khuligan* and have widened its meaning to include political dissidents. An Associated Press story on the crackdown in China after the Tiananmen Square massacre noted, "Radio and TV urged people to turn in fellow citizens who engaged in 'hooliganism and destruction.'" The Chinese, unlike the Russians, have not adopted *hooligan* or *hooliganism* phonetically into their language, as they have some other English words; the Chinese word that Communist Chinese dictionaries translate into English as *hooligan* is *liu-*

mang, variously meaning "rogue," "hoodlum," "gangster." That *hooligan* was the English word chosen by the Chinese themselves to stand in for *liumang* is possibly due, in the opinion of one China expert, to a familiarity with the term gained as a result of China's once-intimate relationship with the Soviet Union. One version of the origin of *hooligan* is that it is an alteration of *Hoo-ley's gang*, supposedly "a name given by the police in Islington to a gang of young roughs led by one Hoo-ley" (James Redding Ware, *Passing English of the Victorian Era*, 1909); who Hoo-ley was or even whether he existed has never been established. Another version is that the term originated with a rascal named Patrick Hooligan, who made the Lamb and Flag pub in the Southwark section of London his headquarters. Two well-known early-twentieth-century comic strips gave *hooligan* a boost in popular usage: one called *Funny Folks*, which featured a comic Irish character named Hooligan, and the better known *Happy Hooligan*.

or fan. The word originally meant "an enthusiast about going to fires"; the first *buffs* (c. 1820) were volunteer firemen whose enjoyment of fires and fire fighting was payment enough for the work they did. The term is a shortened form of *buffalo*, and while buffaloes may seem etymologically remote from fire fighting, they come into the picture in two ways. Early volunteer firemen sometimes wore waterproofed buffalo skin when responding to an alarm. They also wore *buff*-colored uniforms, *buff* being the color of tanned buffalo hide.



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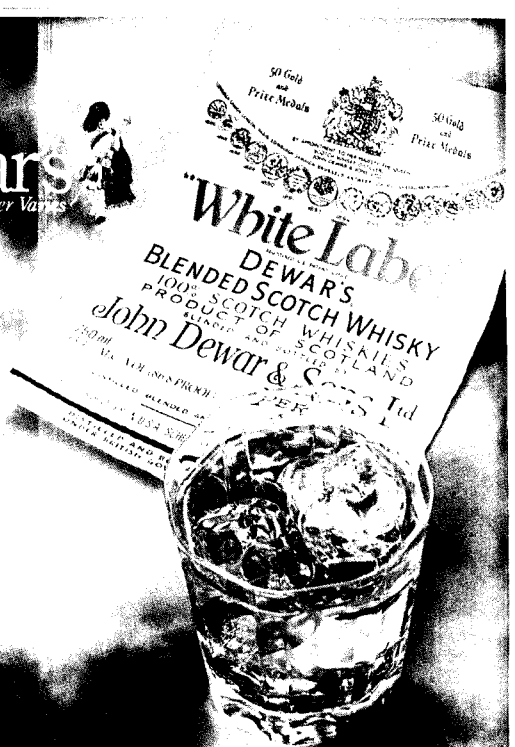
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